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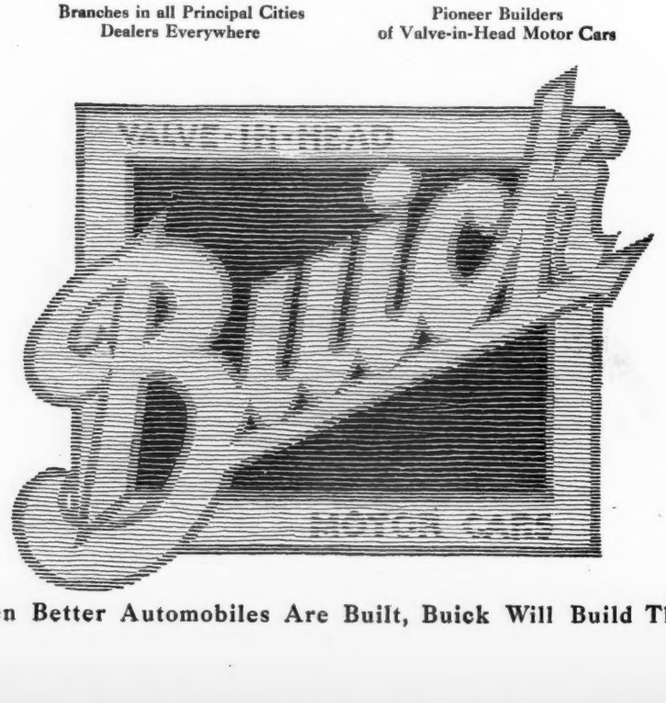

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The Evaporated Fruit Industry

By Joseph S. Caldwell

United States Department of Agriculture

THE PRESERVATION of fruits by drying is accomplished by two general methods, namely, sundrying and evaporation. The first method is limited insofar as commercial practice is concerned to California, which is the only important fruit growing district having climatic conditions which make sundrying possible.

Evaporation or dehydration of foodstuffs by means of artificial heat was at one time generally practiced throughout the United States wherever fruits were produced in quantity, and it was the chief means relied upon for preserving the otherwise unmarketable portion of the crop. The drying plants were of various types and sizes, from those with a production of a few hundred pounds to as many tons per season. The materials handled included apples, peaches, pears, cherries, plums and prunes, blackberries and raspberries, and sweet corn, and the total production reached very considerable figures. During the past 30 years the development of both commercial and home canning, coupled with rapidly increasing production of sun-dried fruits at prices with which evaporator operators could not compete, have brought about a restriction of commercial evaporation to apples and prunes. At the same time there has been a progressive localization of the industry in a few areas of intensive fruit production. States which formerly produced considerable quantities, like Michigan, Missouri, Indiana and Illinois, have been gradually disappearing from the list of producers as the demand for their fresh fruits increased or as attention to fruit growing declined. (See Table I.)

Present Extent of the Industry

At the present time, evaporated apples are produced in New York, California, Washington, Oregon, Idaho, Arkansas, and Virginia. Considerable quantities of evaporated prunes are produced in Oregon, Washington, and Idaho, a part of the crop being grown specifically for drying, while a part goes to the evaporator or to the fresh market according to which may offer the best return to the growers. In the other states named, apples are practically the only evaporated product made. In all cases, the raw material used consists of the unmarketable portion of a crop grown for the fresh fruit market. The volume and quality of the raw material varies considerably from year to year with size of crop and market conditions. The evaporated apple industry is therefore on a by-product basis, serving as an outlet for fruit from which the grower could not otherwise realize a return.

Equipment of Proven Value Is Best

The designing of evaporator equipment has always been an inviting field to the inventor, and the files of the United States Patent Office contain several hundred patents for machines variously designated by the patentees as evaporators, dehydrators, or desiccators. The period of the World War, with its accompanying focussing of attention upon food conservation, was especially prolific of new types of equipment. Many of these machines had originally been designed for drying materials of very different character, and were poorly adapted for handling fruits. A number of devices which had long since been discarded for one reason or another were resurrected and placed on the market. The claims made for these machines ranged all the way from honest over-enthusiasm to rank falsehood. High-powered salesmen unloaded large amounts of such untried and ill-adapted equipment upon confiding amateurs at prices which made profitable operation impossible, even when the machine could come measurably near to fulfilling the claims made for it. Consequently there was no permanent or general adoption of any of the new machines, and the industry continues to employ types of evaporators which have proven satisfactory under the test of long use.

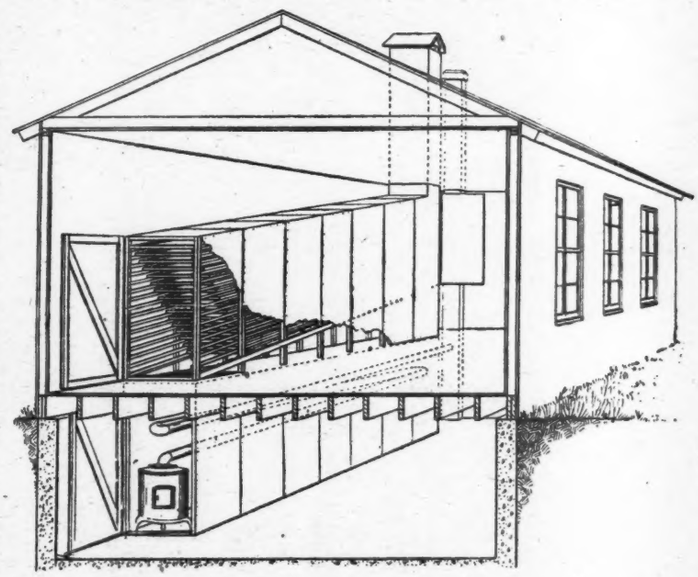

Diagram of typical tunnel evaporator, showing method of offsetting trays to equalize heat distribution

The Kiln Type of Evaporator

Broadly speaking, evaporators at present in general use are of three types, kiln, cabinet, and tunnel. The kiln evaporator was first developed in western New York and is the type used almost exclusively wherever apples are the only product dried, but it is not adapted to the handling of other materials. The building consists of two stories divided into units 20 by 20 feet in size. The lower floor of each unit contains a means of supplying heat, usually a coal burning furnace with the smoke pipe carried once or twice around the room before it passes out in order to distribute the heat. The floor above the furnace room is made of narrow strips of hardwood, laid one-eighth inch apart. The fruit, after paring, trimming and slicing into rings, is spread upon this slatted floor in a layer four to six inches in depth and stirred or turned occasionally with wooden rakes and shovels to promote uniformity in drying. The second story is made only of such height as will permit workmen to get about without inconvenience, and is equipped with a ventilator for carrying away the moist air. A standard 20 by 20 foot kiln will take the slices made from 100 bushels of apples at a loading, and will dry such a charge in 12 to 18 hours, the exact time depending upon the temperature maintained and the atmospheric conditions.

The advantages of a drier of this type are its simplicity and the fact that for a given capacity it can be built and operated at a lower cost than any other type. The operator can build the entire plant and operate it without expert help, and hand labor can be reduced to a minimum by power-operated machines. Its disadvantages are that, since the buildings are usually wooden, the fire risk is high; the control over rate of air movement is imperfect and the rate of drying is reduced by wind or rainy weather; it is sometimes difficult to secure uniform drying over the floor and to avoid local overheating and injury to fruit; and a good many slices are broken in loading and turning, thus reducing the appearance and grade of the product. Finally, there is the possibility that ashes and soot from the furnace, or dirt from the feet of workmen may get into the fruit, but as lack of attention to cleanliness carries its own penalty in the form of lower prices for the product, nearly all operators make cleanliness the first rule in their plants.

In spite of these disadvantages, the kiln evaporator has been used almost exclusively in western New York and Pennsylvania for the past 30 years and has been adopted in Arkansas, the Virginias, and in most of the apple-growing districts of the Pacific Coast. The reasons for its retention are primarily economic. The evaporation of apples is a business offering a fluctuating but always narrow margin of profit. Consequently, it has remained largely in the hands of growers, who carry it on as an adjunct to

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Correct Principles of Sun-Drying Fruits

By Arthur W. Christie
University of California

SUN-DRYING, the oldest known method of fruit preservation, finds its greatest development in the production of dried fruits. The writer has supplemented years of experience in fruit drying by an extensive survey of dry-yards in all sections of California. For the benefit of readers of the AMERICAN FRUIT GROWER MAGAZINE an attempt has been made in this article to summarize the fundamental principles underlying the successful sun-drying of fruits.

Quality an Important Factor

The quality of dried fruits does not depend alone on the treatment after picking but reflects the management of the orchard or vineyard throughout the year. Conscientious application of the best cultural practices is essential to the production of clean fruit of large size and good quality. Dried fruit of the larger sizes and of fine quality is always in demand at good prices, while dried fruit of poor quality and small size is generally difficult to dispose of even at much lower prices.

Thinning to increase size is a very important operation with apricots and peaches. Small fruit is more expensive to handle; it shrinks more in drying, and it brings a lower price. The following figures indicate the financial advantages of thinning: Thirteen peaches (26 halves) make one pound of extra fancy dried peaches, bringing 17 cents per pound, while 54 peaches (108 halves) are required to make one pound of standard dried peaches, bringing only 10 cents per pound. The small peaches contain seven to nine per cent of pits, while the larger peaches lose only five per cent in pitting. To produce one pound of dried peaches of standard grade necessitates the picking, cutting and drying of four times as many peaches as are required to produce one pound of extra fancy dried peaches. The cost of cutting "Standards" is about three-fourths cent per dry pound as compared to one-fourth cent per dry pound of "Extra Fancy," and the picking cost for small peaches is half again as great as for large. The smaller sizes are, therefore, more expensive to produce and the price obtained is much lower.

A comparative observation on the effects of thinning apricots showed a value of $1.22 per box from the thinned plots as compared with 79 cents per box from adjacent unthinned plots. This gain of over 50 per cent in value was principally due to the higher prices received for the larger sizes. The unthinned fruit consisted entirely of Standards (the smallest size grade).

Maturity of Fruit Is Essential

Fruit intended for drying should be thoroughly matured. With the exception of pears, no fruit should be picked for drying until it has developed its full ripe color and flavor and has reached its maximum sugar content. When in prime condition for eating, fruit is also in prime condition for drying, but not before.

The hard, partially green fruit required for commercial canning or fresh shipment is entirely unsuitable for drying. Such fruit, when dried, yields a low grade product lacking in color and flavor, excessively shriveled and curled up, and of decreased volume because of its deficiency in sugar.

Over-ripeness in fruits that require cutting is also to be avoided, because very soft fruit is difficult to cut, it loses its shape, it forms dark colored "slabs" which stick to the trays, and it brings a reduced price.

Pears do not ripen satisfactorily on the trees and they are, therefore, always picked green and allowed to ripen in boxes or bins in the shade. This method results in a firm ripe pear and the best dried product.

Prunes normally drop to the ground when mature but, in some sections, they may remain on the tree after reaching maturity. In such cases it becomes necessary to knock the fruit to the ground for gathering. Since prunes continue to increase considerably in sugar content until maturity and normal dropping, it is advisable to delay knocking as long as possible in order to secure the maximum yield of dark skinned, fine flavored fruit.

The yield and quality of raisins bear a direct relation to the Balling degree (sugar content) of the grape juice. To obtain raisins of first quality, Muscat grapes should not be picked below 25 degrees Balling, or Sultanina grapes below 23 degrees Balling. The higher the Balling degree of the grapes at picking, the less will be the shrinkage during drying, the greater will be the acre yield of raisins, and the higher will be the percentage of the larger sizes.

Picked Fruit Gives Best Results

With the exception of prunes and figs, which generally fall naturally to the ground when mature, fruits should be picked from the tree and not knocked to the ground for gathering. When fruit is knocked or shaken from the tree, a certain amount of green fruit is inevitably brought down with the ripe, and the fruit is more or less bruised and dirty. When a few very hot days cause the rapid ripening of an entire orchard of apricots or peaches, hand picking may become too slow, especially if labor is inadequate. Under such conditions, it becomes necessary to gather the fruit more rapidly by first knocking it to the ground. Striking the branches with poles may injure the fruit spurs. It is safer to shake each branch by the use of a long pole provided with an iron hook. Small trees can often be sufficiently shaken directly by hand. Experienced pickers can obtain all the ripe fruit by this method without bringing down much green fruit. Where the soil is soft and loose in texture and has been well smoothed before picking, injury to the fruit is minimized. In general, however, the most successful growers have found that the slightly greater cost of hand picking which makes it possible to exclude immature fruits is overbalanced by the better quality and greater yield of the dried product.

Wind-falls should be picked up frequently, preferably every morning, as the bruised fruit deteriorates very rapidly when lying on the ground in the sun.

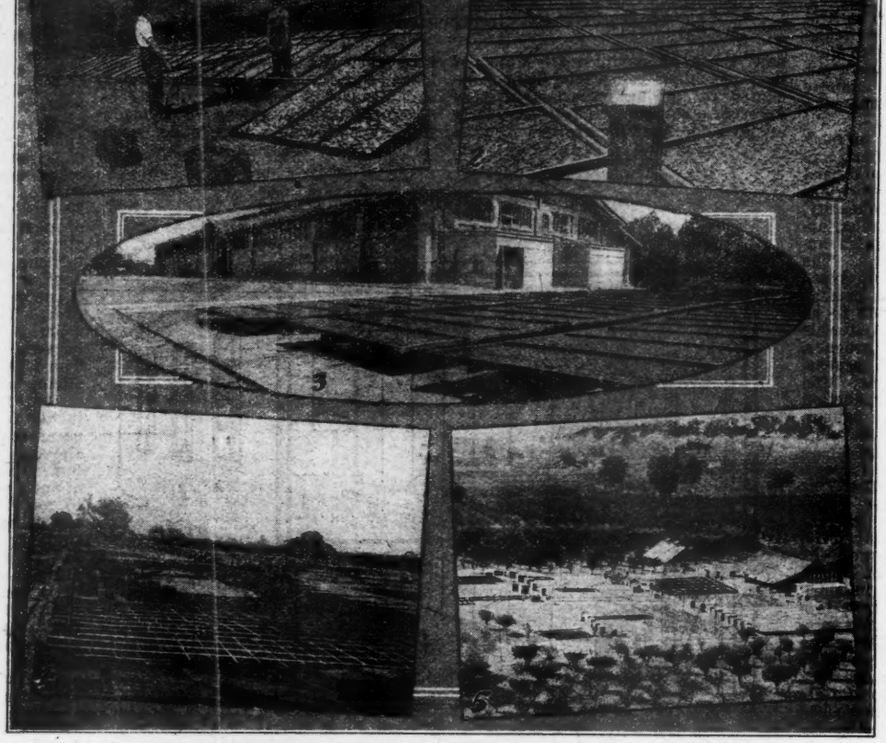
Cutting

Pears, apricots and peaches are cut in half, and the last two are pitted. Halved fruits have become the trade standard because of their superior appearance and the greater readiness with which they may be prepared for the table. Furthermore, halved fruits absorb sulphur fumes and dry much more rapidly than whole fruits. Internal defects caused by split pits, worms, etc., are revealed and such fruits may be trimmed or discarded.

Cutting is invariably done by hand and should result in two equal halves with cleanly cut, smooth edges. Various types of special cutting and pitting knives and machines have been introduced, but they possess no advantages over an ordinary sharp knife in the hands of experienced cutters.

Dipping

Prunes and some grapes are immersed in a hot dilute alkaline solution for a few seconds before drying. Dipping cleanses the fruit and removes the waxy bloom. This results in a clean, glossy product. The hot alkaline solution produces minute cracks or checks in the skin which greatly facilitate the evaporation of moisture during drying. If dipping is followed by sulphuring, the sulphur fumes penetrate the fruit more rapidly and completely. Dipping should be followed by rinsing in fresh water to free the fruit from adhering lye solution, which is invariably more or less dirty.



1—The largest dry-yard in the world, operated by the California Packing Corporation at Kelseyville, Calif. Over 5000 tons of pears are dried here each fall. 2—A peach dry-yard near Lodi, Calif. Note the lapping of trays to keep them off the ground. 3—A modern fruit cutting and packing house near Winters, Calif. Note the sulphur houses at the far end of packing house and the trays of apricots in the foreground. 4—A large prune dry-yard in the Santa Clara Valley of California. 5—A prune and apricot dry-yard in the Santa Clara Valley

Sulphuring

Apricots, peaches, pears, Silver prunes and some grapes are exposed to the fumes of burning sulphur after cutting or dipping and before drying. When sulphur burns, it combines with the oxygen of the air to form a gas, sulphur dioxide. This gas has the property of dissolving in water to form a mild acid, known as sulphurous acid. This action may be represented graphically as follows:

$S + O_2 = SO_2 + H_2O = H_2SO_3$
Sulphur + Oxygen = Sulphur Dioxide + Water = Sulphurous Acid

Without the presence of adequate moisture, sulphurous acid cannot be formed in sufficient amount to secure the desired preserving action on the fruit. For this reason, it is highly desirable to wash or sprinkle the fruit with water before sulphuring in order that the surface may be in a moist condition to readily absorb the sulphur dioxide gas.

Sulphurous acid in small amounts is a harmless preservative and without its use the high commercial quality of California dried fruits could not have been developed. Numerous substitutes for sulphur have been tried but none have been successful. Sulphur is the standard and only preservative for dried fruits. Although considerable amounts of sulphurous acid are formed in the fruit during sulphuring, the greater part of this is evaporated during drying, and there is a further small but steady loss during storage after drying.

Part of the sulphur dioxide absorbed by the fruit combines with the sugar and other compounds of the fruit in such a way that it cannot be separated without destroying the merchantability of the product.

However, if the amount of sulphur burned much exceeds that required to preserve a natural color, an excessive absorption and retention of sulphur dioxide gives the dried product a sulphurous taste, which is objectionable to most consumers. Therefore, it behooves every grower to restrict his use of sulphur to the minimum

(Continued on page 10)

The Manufacture of Cider and Vinegar

By W. W. Chenoweth
Massachusetts Agricultural College

THE CHARACTER and quality of cider and consequently its value as a drink or for manufacturing purposes depend primarily upon three things: (1) the fruit itself; (2) the equipment; and (3) methods employed in manufacturing and handling the finished product.

The Fruit

Late autumn and winter varieties of apples make the best cider. Summer apples as a rule give a thin acid cider which may be used for manufacturing purposes but which is rather poor for drinking. Hand-picked apples will make cleaner cider if washed, while apples picked from the ground must be washed if quality is desired. Washing may be accomplished in many ways. The following is a simple and cheap method: Make a board trough six to eight feet long and about 14 inches wide at the bottom and three or four inches wider at the top. Fill this trough half full of water and pour in two or three bushels of apples. Use a wire shovel, commonly known as an onion or potato shovel, and stir the apples back and forth through the water, then lift them out with the shovel and allow to drain. When the water becomes dirty, empty and replace with clean water. It is more economical to grade the apples before they go to the cider mill. Discard all rotten fruit, also those apples having a large amount of scab. Rotten or scabby fruit will produce poorly flavored cider.

The apples should be ripe but firm. Green apples contain starch and will give a sour, turbid cider. Over-ripe or mellow fruit will give a flat cider with a large amount of fine pulp in suspension. Also, the yield will be reduced, and the press cloths are more difficult to clean.

As a general rule a blend of two or more varieties will give a more acceptable cider than most single varieties. By mixing equal parts of acid apples and sub-acid or mildly sub-acid apples, the blended cider will be far superior to that made from either alone.

The Equipment

Good equipment is necessary in order to produce good cider. If one intends to market the cider he can afford to invest in a good cider mill because the quality and increased yield will soon pay for the entire outfit.

As a general rule power mills are preferred to hand mills, because of larger yield per bushel and because of higher quality. This is true because the power mills grate the fruit into a fairly uniform fine pulp and a greater pressure is possible. These two factors combine to give a maximum yield, especially when the finely ground pulp is made up in a series of cheeses not more than four to six inches in thickness and separated from each other by a slat frame. A power mill will give an average yield of about four gallons of cider per bushel of hard ripe apples.

The pressure should be applied gradually, and when maximum pressure is obtained it should be maintained for some minutes—as long as the flow of cider will justify. When the pomace is removed from the press cloths, it should be comparatively dry and very thin and it should show a decided tendency to leave the cloth as a thin solid cake or sheet. If the cider maker will sample the juice at several intervals as it comes from the press, he will see the wisdom of thorough pressing.

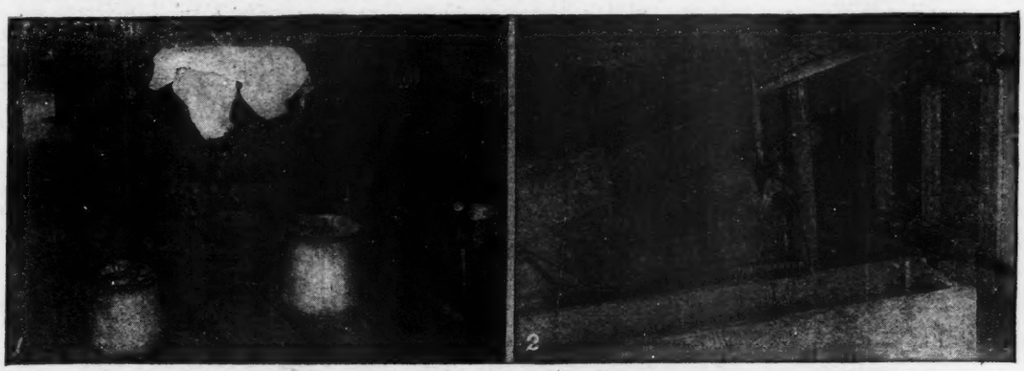
Clarifying the Cider

If the apples are in prime condition, there will be relatively little pulp in the cider. But since there will almost always be some suspended matter in the cider, it must undergo some process of clarifying. This consists of straining, filtering, or sedimentation.

As a rule straining will remove sufficient amount of the sediment for use in vinegar making or for immediate sale as sweet cider. This may be accomplished by straining the fresh cider through two layers of cheesecloth. If it contains a large amount of pulp, it should first be strained through some coarse cloth, such as a press cloth, before going through the cheesecloth. This straining need involve but one operation, as the three cloths may be fastened over the open end of the keg or barrel, having the coarse one uppermost. When it becomes filled with the pulp, remove and shake off the accumulated pulp.

The cider fresh from the press may be placed in open barrels and allowed to stand for some hours in order to allow the pulp to settle out. This will give a cleaner cider than straining, but if the weather is hot, fermentation may set in and spoil the sale as fresh cider. If a cold room is available, this difficulty will not arise, as the time required should not exceed six to eight hours for a 10-gallon keg and longer for barrels.

All dealers in cider-making equipment carry some type of force filter or gravity filter; these are efficient but require considerable care and involve some expense. However, if the cider is handled in large quantities and is sold as sweet cider, they become almost necessary in order to keep on hand a supply of good clean cider.



1—Barrel arranged for straining cider. Note the two types of cloths, uppermost coarse, the lower fine. Cider drawn from barrel through faucet near bottom. 2—Trough and shovel used for washing apples. Bin above has slanting floor and feeds apples into carrier, which delivers them to the grater. 3—Cider in kegs being fermented into vinegar. The loose cotton plug prevents entrance of vinegar flies, one of the vinegar-maker's worst troubles

Cleanliness

Too much emphasis cannot be placed upon this phase of cider making. The fruit itself and everything with which the cider comes in contact must be kept scrupulously clean. The grater, press, press cloths, and racks must be washed thoroughly after each day's operation, and the containers that are used to handle the cider, as well as those in which it is stored, must be kept clean. Hot water should be used in abundance to maintain a clean and sanitary place. If cider is being made to retail as a soft drink, the premises and equipment should be kept as clean as the proverbial housewife's kitchen. This fact alone will sell quantities of cider. Most persons are just a little particular about the kind of food they take.

A very essential part of the retail cider dealer's equipment is some means of keeping his cider cold. Properly made cider if kept cold may be marketed with safety many hours after manufacturing. A device used by some of our New England cider makers is to place the clarified cider in small containers, usually of gallon size, and set these in a tank of ice and water. If the containers are closed, they may be submerged in this ice water. These containers permit the cider to cool quickly, and they are also handy for serving to the trade.

The fruit grower who will make good clean cider from his culls and poor grades and who will strive in every way to comply with his state and federal laws regarding the sale of it will as a rule find himself making a good profit on fruit that is far too often a total loss.

Vinegar

The grade of vinegar made on the farm depends upon: (1) the quality of cider used and (2) the method used to change the cider into vinegar. Many farmers who try to make cider vinegar are too much inclined to "just let nature take its course." The chances of success under such procedure are rather remote.

The farmer who would make good vinegar must either know the science involved in such an operation and govern his actions in accordance with this knowledge or else be able to follow implicitly the directions given by one who does know the "how" and "why" of vinegar making. Either will produce good vinegar, but slipshod methods without reference to science or formula will bring failure more often than success.

Vinegar is the product of a double fermentation. These two kinds of fermentation must be carried out in proper sequence, i. e., the one must be completed before the other is allowed to begin.

First Stage—Yeast Fermentation

The first stage of making sweet cider into vinegar is that of yeast fermentation. The clean sweet cider should be placed in barrels or kegs that have been given a thorough cleansing with hot water. The barrels should be filled practically full, then placed where the temperature does not run too low. They should be laid on the side bung up, *with bung removed.* If the temperature can be kept between 70 and 80 degrees Fahrenheit, the fermentation will progress rapidly and will be completed by the end of three or four weeks. If, however, the temperature runs as low as 60 degrees Fahrenheit, it may require six to eight weeks. However, lower temperatures require longer periods. As a rule in those sections that have cold winters, the temperature in the unheated cellar will run low enough to stop fermentation. Barrels of cider placed in such cellars in late autumn may not complete this stage of fermentation until late the following summer and, as quite often happens, this part of the process of vinegar making will never be completed.

Yeast will tolerate a small amount of acid, but only a small amount. It frequently happens, therefore, that a part of the yeast fermentation takes place in the late autumn, but as colder weather comes on the temperature drops low enough to stop all yeast activity. As a result, the barrel lies dormant until the following spring. As it grows warmer the yeasts may again become active and complete the fermentation during the summer. Should this occur, no great harm has resulted except the loss of much time. But if the yeasts are slow in starting in the spring and the acetic acid fermentation gets started first, they will change the product of the partial yeast fermentation into acetic acid, which will prevent any further action by the yeasts. The result of such action is that such barrels seldom make vinegar of more than one to three per cent acetic acid and are therefore a total loss, since the farmer has no way of salvaging this waste. On the other hand, if the temperature can be maintained as recommended, this most common cause of failure will be removed.

If the house cellar has a furnace room, this will as a rule be warm enough to use. If no convenient place can be had where the proper amount of heat is available, the house or barn,

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Go to College

SCHOOL time is almost here again, and we know that hundreds of boys and girls are wondering whether or not they should go to college. To them we should like to say a few words.

Probably some of you are asking yourself the following questions: Can I afford to take the time to go to college? Will it not be better to go to work and save that time and expense? If you are thinking only a year or two ahead, you should by all means go to work at once, but if you are thinking of your life plans, as you should be, you will carry your thought a little further. After all, three or four years' time is only a small matter. It will pass away quickly and when it is gone you will never miss it. This time spent during your best years in fitting yourself for the big things in life will be time well spent. You can make progress much faster after you are through college, and you will soon make up all the time lost.

The expense may be an item to you, but it has been a serious item to many boys and girls in the past and thousands have surmounted it. Thousands earn a large part of their expenses at college every year, and many make their entire way. It is difficult to do these things, of course, but a person who wants a thing bad enough will go through a lot of hard work to get it. Of course, it is a hard task to make all of your expenses, and if you can avoid this by borrowing some money or by having some to start with, it will be very well. It is a good thing for any student to make part of his expenses at college.

You may think a college education is impractical. It is true that some courses offered in college are impractical, but because of the public demands, a large proportion of the courses taught are of a practical nature. This is proved by the fact that the number of college men occupying important positions is rapidly increasing.

By all means go to college if you can. The time and expense will soon be forgotten. You will gain a large fund of information that will be helpful to you throughout life. Your associations with men and women will alone be a liberal education in psychology. Then furthermore, you will develop a confidence in yourself that will be a help throughout life. If you study any science, which you probably will, the satisfaction of understanding better many of the processes going on about you in nature will make life more worth while to you even if you never turn the information to a dollar of profit.

Of course, you must not let yourself get the idea that a college education will make a man or woman out of you. It is possible to have a college education and still be without common sense. A college education will help to fit you for the problems of life. You will have a much better chance to succeed with a college education than without one, but your success will depend on how you make use of your education.

Trees Require Much Moisture

IT HAS been estimated that an acre of apple trees gives off into the air during a growing season about 600 tons of water. An acre of grass or cover crops gives off 500 to 750 tons. This moisture, of course, must first be absorbed by the roots. In it is contained the raw food which is taken up from the soil. When the moisture evaporates the plant food is left in the tree. The more moisture that passes through the plant during the growing part of the season the better chance the tree has of being properly fed.

Besides the moisture evaporated through the leaves, large quantities are lost from the soil through leaching, surface run-off and direct evaporation. These losses can be reduced by maintaining an abundant supply of organic matter in the soil, by the right kind of cultivation and cropping, and by terracing under certain conditions.

The wise fruit grower will reduce the loss from the latter causes to the smallest possible proportions during the early part of the season in order that the largest possible amount of moisture will pass through his trees and fruit plants.

One must take into consideration, of course, that it is not advisable to stimulate growth too late in the season. On the contrary, it is advisable to check growth fairly early by discontinuing cultivation or by planting cover crops so the buds and wood will mature properly. This will enable them to better withstand cold winter weather.

Good Equipment Helps to Lower Costs of Production

BECAUSE of the depression in prices of farm products following 1920, farmers and fruit growers adopted policies of strict economy. This economy was justified under the circumstances, but after practicing such economy we are likely to continue the same after the need of it has passed. In normal times it is unwise to practice too great economy. One must spend money in order to make money in most of the business ventures of the present day.

During the economies practiced the past few years in agriculture, many pieces of really worn-out equipment have been kept in service. Because of the extreme needs of the situation, hundreds of growers have refused themselves equipment which they really needed in order to do their work most efficiently.

It is beginning now to look as though agriculture is on the upgrade. Financial and economic conditions the world over are much better than at any time since 1920, and there are no indications whatever of large world food surpluses for at least a year or two to come.

With these things in mind, we believe it will be good business for every grower to look over his equipment, both in the house and outdoors, and see if he cannot make some additions and improvements that will make the place more profitable and enjoyable. After all, we must remember that we pass through life but once. Every year that we refuse ourselves things we should like to have or which we need in order to make our work more efficient, that much we deprive ourselves of pleasures and profits we might otherwise have.

The question resolves itself largely into one of cost of production and net income. If one can reduce his cost of production and thereby raise his net income by using better equipment, it is simply good business to secure such equipment. We believe growers can now proceed with considerable confidence in purchasing equipment which they have been refusing themselves for some time.

Remarkable Return from a Questionnaire

NOT LONG ago we sent out 2000 questionnaires to readers selected at random in order to secure information about the average conditions existing among our readers. We received 842 answers in reply and all of the questionnaires returned were filled out carefully.

Those who have sent out questionnaires know that as a rule only a small per cent is returned; in fact, we believe that two to three per cent on the average is considered a fair return.

We offered no premium whatever for filling out and returning the questionnaire, and the return of 42 per cent of them can mean to us only one thing. We believe we are justified in concluding that the large return indicates the high esteem in which readers hold the magazine and shows their desire to co-operate with us. We appreciate very much this splendid co-operation and we thank our readers for replying so well to our questionnaire.

Price Level of Farm Products Still Low

A RECENT report of the Department of Commerce shows that the general price level of commodities in May, 1923, was five and three-fourths per cent above the price level in May, 1924. Farm products averaged 11¼ per cent higher than a year ago; foods, 12¼ per cent higher; and miscellaneous commodities, 17 per cent higher. The index number for farm products in May, 1925, was 151.9 (1913 equals 100) as compared with 153.2 for foods, 188.4 for cloths and clothing, 168 for fuels and lighting, 173 for building materials, 170 for house furnishing goods, and 155.2 for all commodities. Thus, agriculture was still at a disadvantage from a price relation standpoint in May, 1925.

Avoid Troublesome Disputes

IN THE conduct of business matters many disputes arise. In some instances these may be due to the failure of one party or both to carry out the terms of the contract, but there are many cases in which honest differences arise between well-intentioned people. Such differences are usually due to lack of a complete meeting of minds at the time the contract was entered into.

It may seem old-maidish to enter into serious contracts slowly and carefully, but it is the best policy and will save time, money and trouble as a rule in the long run. Important agreements should be reduced to writing and the details should be specified as nearly as possible.

If you are dealing with an honest man, he will be perfectly willing to make this kind of a contract, as it will be an advantage to him as well as to you. If you are dealing with any other type of man, you will need that kind of a contract.

Putting the Quality Into Pears

By Henry Hartman
Oregon Agricultural College

IT IS generally true that the native American is not a connoisseur of pears. The pear varieties of high quality have not been grown extensively here during recent times and the American public has not acquired a keen appetite for them. The amateur or fruit fancier of other days grew choice pears to a certain extent, but with the passing of this class of horticulturist, and with the general spread of the merciless fire blight, the sorts of real merit all but disappeared. The Kieffer and its allies came to the fore, and it is largely from these that the present generation has formed its estimate of pear quality. Of late years, Bartlett has gained considerably in popularity, but Anjou, Comice, Bosc and Winter Nelis, when obtainable at all, are consumed largely by the foreign peoples in the large cities, who cultivated a liking for them before coming to this country.

It is not surprising, therefore, that the trade and consuming public in general do not know how to handle pears and that inferior quality is often found in what is potentially a high grade product. Not infrequently one finds pears, properly grown and harvested, go to waste or develop only into "cooking" pears because of improper handling during the ripening period.

A Pear Is a Living Organism

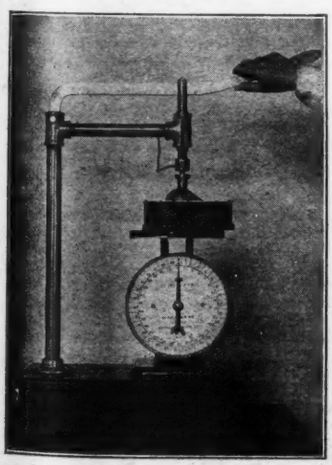
A pear, whether attached to the tree or in storage or in transit, is a living organism. Its ultimate quality and length of life are dependent upon environmental as well as internal factors. In some respects it is like an animal. It carries on respiration, taking in free oxygen and giving off carbon dioxide. Consequently it must be treated as a living thing and not as a mere mass of dead or inert matter.

Time of Picking

Casual observation and experimental evidence have emphasized the fact that the degree of maturity which the fruit has attained when picked exerts a pronounced influence upon the dessert, keeping and canning qualities of pears. When picked prematurely, pears, in the main, are undersized and may wilt considerably in storage. They lack in sweetness and aroma and are apt to be astringent in taste and tough in texture. When left too long on the trees, they go down quickly, lack in juiciness and frequently rot at the core.

Determining Maturity

The pear, unlike most other fruits, develops its best quality only when



The pressure tester, a satisfactory device for determining time of picking in pears

harvested in a comparatively immature condition. In the case of the pear, then, one is confronted with the problem of determining time of picking long before the usual indicators of maturity make their appearance. Size of the fruit, color of the seeds, and ease of separation from the spurs, are not reliable indicators of maturity in pears, and such factors as changes in the ground color, nature of the bloom, and ripening of imperfect specimens, are of value only in a general way. There is need, therefore, for a test of maturity in pears. To be acceptable, this test must be one that can be easily and quickly applied and which excludes the human element as far as possible.

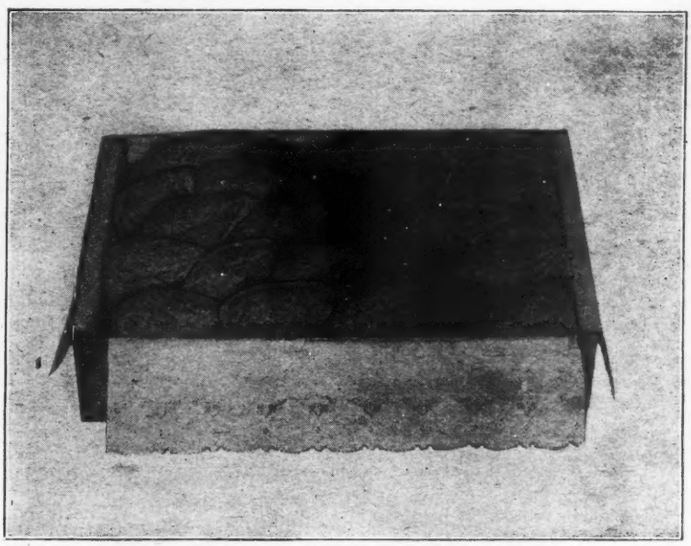
Several tests of maturity for pears were investigated by the Oregon Experiment Station. The so-called iodine test was given a thorough trial, but it proved unsuccessful. The specific gravity test likewise proved unsuccessful, and it soon became apparent that any test applicable to this fruit must be based wholly or in part upon "the physical rather than the chemical contents of the cells." Of all the schemes tried, the so-called pressure test was the only one which gave promise.

This test is based upon the fact that during the growth and ripening of the pear there is a gradual and consistent lowering of the physical resistance to pressure or wounding of the epidermal and cortical region. In the case of Bartlett, for example, the decrease in resistance over an area one-half inch in diameter is close to one-half pound or two per cent every 24 hours. To measure the changes in resistance, a simple apparatus, now known as the "iron thumb" or pressure tester, has been perfected. Tables indicating the proper picking pressures have been prepared as the result of several seasons of actual field experience. The pressure test is now in use in the more important pear districts of Oregon, and, in the main, has given satisfaction, not only as an indicator of picking maturity but as an index of the condition of fruit in storage.

Resistance Varies with Different Sorts

Since all pears do not offer the same resistance at corresponding stages of maturity, it has been necessary to work out a separate pressure table for each variety. Bartlett as grown in Oregon, for example, attains its best quality when picked at pressures varying between 35 and 25 pounds, while Anjou may be picked with safety when the tester registers between 24 and 19 pounds. Comice does well when picked at pressures between 20 and 18 pounds. Bosc from the Rogue River Valley develops excellent quality when harvested at readings between 24 and 20 pounds, but when grown farther north, it is firmer in texture, and proper picking maturity is reached when the resistance varies between 30 and 27 pounds.

With the general use of the pressure tester, some interesting and valuable information has come to light.



The half box, a convenient package for fancy pears

It has been found, for example, that there is a rather close relationship between the amount of crop on the trees and the maturity of the fruit. Invariably the fruit from the heavily loaded trees, though usually smaller in size, is more mature than that from the lightly or moderately loaded trees. The differences occasioned by this factor in time of picking amount to as much as 12 days in extreme cases. This is significant, since in many of the commercial districts pears are picked largely according to size. Obviously, when this practice is in vogue, the less mature fruit is often the first to be harvested.

Time of picking, apparently, has considerable influence upon the time required for the fruit to reach prime eating condition. During the season of 1923, pickings of pears were made at intervals of three to four days, and in each case the fruit was placed in common storage at a temperature of 66 degrees Fahrenheit and a relative humidity of 80 to 85 per cent. Several varieties were subjected to this test. In the case of Bartlett, it was found that the fruit of the first picking reached full maturity in 15 days, while that of the last picking reached this condition in only four days. Fruit of Anjou, gathered on September 1, was ripe in 54 days, while that picked on October 5 was ready for eating in 26 days. Cold storage, however, seemed to alter these results somewhat.

Pear Storage

Since the pear must be harvested while in a comparatively green condition, it is apparent that the storage must play an important role in the disposal of the crop. Storage of some kind is indispensable in the handling of pears. Recent studies have given some specific information from which more or less definite storage practices have been evolved.

Probably the most important single factor relating to the storage of pears is that of temperature. As with other fruits, the rate of ripening in pears, within certain limits, is increased by two and three times with each increase in temperature of 10 degrees Centigrade. When early maturity is desired, pears may be subjected to temperatures of 65 and 70 degrees Fahrenheit. These are critical temperatures and pears ripen quickly when subjected to them. For long keeping, they may be placed in cold storage at temperatures of 30 and 32 degrees Fahrenheit. Pears do not freeze unless the thermometer goes below 28 degrees Fahrenheit for a considerable period of time.

The length of time pears may be kept in cold storage depends largely upon the variety, the conditions under which they were grown, and the time and manner of harvesting. The storage life of Bartlett, on the average, is between 40 and 60 days. If the fruit has not ripened during this period, it is generally best to remove it to a warmer location. Bosc usually keeps well from 50 to 80 days, while Anjou and Winter Nelis often come out of storage in excellent condition as late as April and May.

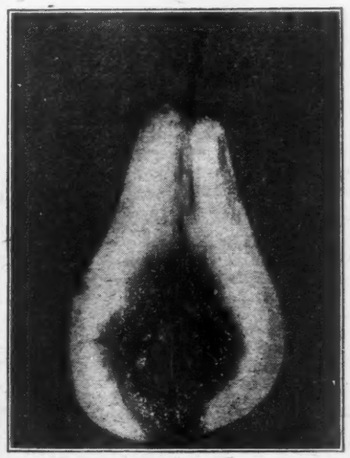
Precooling seems desirable for most varieties of pears. Successful shippers of Bartlett, Anjou and Comice attempt to get their product under ice a few hours after picking. Bosc is seemingly the one variety that reacts most unfavorably to precooling. Immediate refrigeration has a deleterious effect on the quality of this pear and for best results the fruit should be subjected to "delayed" storage for a week or 10 days at temperatures of from 60 to 70 degrees Fahrenheit.

Pears are extremely sensitive to odors and in no case should they be stored with strong smelling products. The smells of vegetables, meats, etc., are readily absorbed by pears and frequently persist after removal from storage.

Loss of Weight After Harvest

Loss of weight after harvest may be a serious factor in the handling of pears. In extreme cases this loss during the storage period may amount to as much as 15 per cent. Loss of weight not only results in decreased volume and tonnage, but seriously impairs appearance and quality. A loss of three or four per cent is sufficient to cause noticeable wilt, and wilted pears are generally dull and unattractive and do not become aromatic.

Though several factors may contribute to loss of weight after harvest, insufficient humidity is its chief causal agent. The outer covering of pears is usually deficient in wax or "bloom" and consequently excessive transpiration occurs when the humidity is low. Experiments have shown that storing at relative humidities of 80 to 85 per cent practically prevents loss of weight. Wrapping the fruit in paper also aids in preventing loss of weight. The humidity of common living rooms is usually too low for the proper keeping of pears. This is especially true in the case of the winter varieties.



Typical core breakdown in Bosc pear. This trouble can be prevented by picking at the proper time

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Texas Magnolia Figs

By W. B. Lanham

Texas Agricultural College

HAVE you ever eaten Magnolia figs? Think twice before you say "Yes." Don't confuse Texas Magnolia figs with dried figs. Magnolia figs are never dried; they are preserved in heavy syrup. They are not a drying fig. But preserved properly—well, the Lord might have made a better fruit, but He didn't.

So far as the general public is concerned, preserved Magnolia figs are an unknown product. They have been introduced to some extent to the high class hotel and dining car service only.

Where the Magnolia fig originated is not known. There is a legend to the effect that about 25 years ago a tree was found in a shipment of nursery stock and planted, by the owner, for a Magnolia tree. It was named Magnolia by its owner when he discovered that it was a fig and not an ornamental shrub.

A relatively large acreage of Magnolia figs was planted in the Gulf Coast section of Texas about 20 years ago.

Early Plantings Oversupplied the Market

For a time so many figs were grown that no one knew what to do with them. There was then little market for this entirely new product. A market had to be developed, and figs grew more rapidly than did the market. The boom in production, with practically no market, proved disastrous. Most of the orchards were destroyed. As a commercial proposition, the industry almost expired.

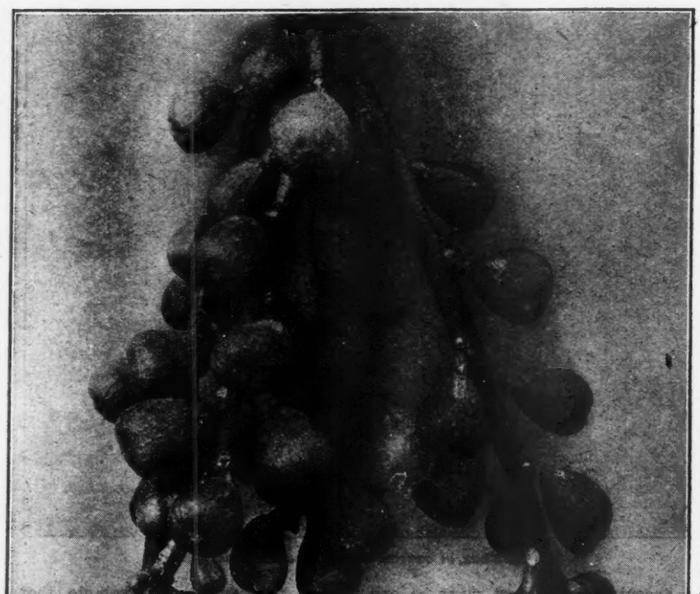
A few growers, however, continued caring for their orchards, and one or two of the preserving plants were kept in operation, cultivating and expanding the market for preserved Magnolia figs. In fact, several years ago the market had grown larger than the available supply. There is, therefore, almost a boom on again. The industry has been, for the last few years, very profitable for the growers who stayed in the business and who have given their orchards proper care.

The returns from the orchards of these pioneer, experienced growers have been taken as typical of what one might expect of the business, and large acreages have been sold for fig growing. Whether the purchasers will be satisfied will probably depend on a number of considerations, among them the following:

Select Site Carefully

Not all land on the Gulf Coast is suited to fig growing. Most of the Gulf Coast land is practically level. Good, natural drainage is, therefore, not always provided. Good drainage is absolutely necessary for success, and if the land is not naturally well drained, some method of artificial drainage must be provided.

Practically all of the successful orchards are on rather heavy soil. So far, figs have not been found to do well, or to live long, on light soil. Most of the land on the Gulf Coast is rather rich and well supplied with humus. Where it has been recently drained, it may be inclined to be acid. Lime will help to correct this, if, in addition, good drainage is provided.



A bunch of Magnolia figs. Note how they are produced from lateral buds of the current year's growth

Shallow and Frequent Cultivation Essential

Figs are shallow-rooted and require many shallow cultivations to keep the land in the proper condition during the summer. Some growers go over their orchards 15 to 30 times during the summer. This intensive cultivation is necessary to get the best results, but it burns out the humus very rapidly. Where barnyard manure is not available, as is the case generally, a cover crop is grown during the winter, to be turned under in the spring.

Magnolia figs bear their fruit in the axis of the leaf of the current season's growth. Therefore the trees are very severely pruned each year. Usually this is delayed until as late as possible in the spring, or until danger of freezing is over.

Since the revival of interest in planting, there has been such a demand for prunings to be used for propagating material, that some of the growers are doing their pruning early in the season. They then sell the prunings to nurserymen.

Fig rust is practically the only disease that seriously affects figs in Texas. Unless it is controlled, trees are sometimes defoliated by early fall. Bordeaux mixture controls this disease fairly well. A number of different formulas are being used by different growers, varying from 5-7-50 to 10-12-50. No damage to the foliage, even by the strong mixtures, has been reported.

Efficient Marketing Methods Must Be Developed

Past experience has fully demonstrated that Magnolia figs can be regularly grown, and in abundance, by proper methods. The question is, will there be a profitable market for them? At present they are preserved in a

(*Concluded on page* 26)

The Successful Roadside Market

By H. B. Tukey

New York State Agricultural Experiment Station

JUST south of Albany at Kinderhook on the New York-Albany Turnpike stands one of the most successful roadside markets in eastern America. William Hotaling, the owner, denies that it has been conspicuously successful, but his friends and neighbors observe that he tours Florida during the winter months. At any rate, this roadside market has developed from nothing to a flourishing business in the course of a few years, and it is a general axiom that "things don't just grow."

"It may sound strange for me to say that I have always been opposed to wayside selling in general," said Mr. Hotaling as he began telling of his enterprise, "but not only that, I am still opposed to it."

I ventured a laugh at this remark, because if there is any class that has opposed the monopoly idea it has been the farming class.

"No," was the curt reply, "I am not trying to discourage other folks from trying wayside selling, but in general it is a bad thing.

"You see, there are all kinds of roadside markets. You have seen the chap with the gasoline pump, the box of cigars, the camp chair, and the umbrella trying to get along without working; and the place of gaudy signs, empty pop boxes, flies, and bad smells. They are of little benefit to those they try to serve, and it is questionable whether the cash return is equal to a fair day's wages in some productive industry.

Roadside Market Too Often Used for Selling Inferior Products

"But that isn't the worst feature of the situation. A great many think that anything that is too poor to go elsewhere can be disposed of on the roadside market. What is worse in its effect upon farm prices than a continual line of cider apples and other inferior products? Usually this kind of produce is marked with glaring price figures, and even though few may stop to inspect or to buy, yet thousands of passersby see the price marks and are led to believe that the country is full of stuff which everyone would like to sell for half what legitimate dealers ask.

"Naturally they feel that if they are going to be held up they will not buy. And so I say that anyone who sells stuff at the door for what it would net him when shipped helps to lower the general tone of farm prices. Not only does he force all who must ship to take a lower price, but he must also expect to take it himself for any surplus he may ship."

Mr. Hotaling's roadside market is different from others. Note its setting among trees and flowers, its orderly arrangement, its cleanliness, and its inviting appearance

This was quite a tirade against wayside marketing and I looked about questioningly at the attractive display of fruits and vegetables and the conveniences and comforts that denoted an established enterprise. But before any further remarks could be made, a large touring car bearing an Illinois license plate pulled up at the side of the road, and the family party of tourists alighted.

Customers Come from Near and Far

"I just thought I'd see what you had here," said the driver. "One of my neighbors in Chicago told me to stop and see you if I ever got down this way."

A lively conversation ensued and finally the party, supplied with fruits and cider, was once more on its way with a promise to stop again upon some future tour through the East.

I was surprised that the grapevine telegraph could bring customers from such a distance, and I remarked that a business would have to be a permanent one if it catered to such trade.

Permanency an Important Factor

"Yes," was the answer, "this is a permanent establishment, a bonafide business proposition, and in my opinion that is the only type of roadside market that can be called successful and which should be encouraged. All these fly-by-night, hit-or-miss propositions will finally pass, depending, of course, upon how long it takes some folks to realize the folly of spending hours of time for only a small return. The permanent business proposition, conducted as a means of disposing of the products of a pro-

(*Concluded on page* 21)

Help Us to Secure This Radio Census

THE NATIONAL Farm Radio Council, which is backed by a number of leading farm organizations, is anxious to learn how better and more useful radio programs can be provided for the agricultural public. With this in mind, it has asked us to print the questions given below. We shall appreciate it if as many of our readers as possible will answer these questions and mail their replies to the AMERICAN FRUIT GROWER MAGAZINE, 53 W. Jackson Boulevard, Chicago. Use a blank sheet for your answer and indicate the questions by numbers. We shall turn these answers over to the council.

1—What is your favorite station? 2—Why? 3—Which part of radio programs appeals most to you; orchestra, singing, educational farm talks, market reports, or weather forecasts? 4—Is your radio useful as well as entertaining? 5—In what way? 6—What is the most useful thing you get over radio? 7—Have radio market reports ever saved you money? 8—How did it happen? 9—At what time of day does your family listen regularly over your radio? 10—When is the most convenient time for market reports? 11—Do you take market reports down as they are read? 12—What times of the day do you listen in? 13—Would you enjoy educational talks by experts on fruit growing, poultry, dairy, livestock and other branches of agriculture? 14—Would you like to hear talks about meetings of farm organizations, agriculture developments, economic trend, etc? 15—Would you like to hear talks on marketing by prominent men? 16—Please list other features dealing with agriculture that you would like to hear. 17—Do you listen to baseball, football and basket-ball games? 18—Do you listen to church services on Sunday?

Putting Quality Into Pears

(*Continued from page* 7)

Requisites of Properly Ripened Pears

As the saying goes, the proof of the pudding is in the eating. The efficiency of handling practices, in the case of pears, becomes apparent in the finished products. When properly ripened, such pears as Anjou, Bartlett, Bosc, Comice and Winter Nelis are waxy in appearance and are practically free from wilt. They range in color from a pale creamy yellow in Anjou to a deep bronze in Bosc. They are naturally buttery and juicy,—hence, the terms "buerre" and "fondante" applied to them by the French. Though they may be hard and more or less dry in texture when immature, these traits should be absent from the ripened fruit. They should be comparatively free from astringency and should leave no after taste in the mouth.

Core Breakdown in Pears

Core breakdown is evidently a physiological disease of the pear. It is primarily a storage trouble, although core damaged fruit is occasionally found on the trees. The disease is characterized by breakdown of the core area and surrounding portion of the fleshy torus. Except in very pronounced cases, the fruit is sound in outward appearance. A foul odor is generally present in the advanced stages. The disease manifests itself as the fruit approaches prime condition. Most varieties of pears are susceptible to core breakdown, but of the common sorts, Bosc and Comice are most frequently affected, especially in certain districts.

Core breakdown seems to be directly associated with time of picking. Of the various lots of pears under observation at the Oregon Experiment Station during the past seven years, only the late picked fruit developed the disease to any extent, this being true regardless of the nature or kind of storage used. Seemingly, the later the time of picking the more serious the trouble becomes.

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Touring Car, Phaeton, Coach, Roadster, Sedan, Royal Coupe, Brougham, Imperial and Crown-Imperial—attractively priced from $1395 to $2195, f. o. b. Detroit subject to current Federal excise tax.

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Bodies by Fisher on all Chrysler enclosed models. All models equipped with balloon tires.

There are Chrysler dealers and superior Chrysler service everywhere. All dealers are in position to extend the convenience of time-payments. Ask about Chrysler's attractive plan.

The trend throughout America today is toward the Chrysler Six, because the Chrysler Six is in line with the American trend toward genuine economy.

It satisfies the growing desire to make the dollar go farther—to make it buy more comfort and enjoyment.

The plain fact is, that the Chrysler Six affords all the roadability, speed, and ease of riding of big, cumbersome cars; and to these, adds its own inherent advantages.

It is far less costly to buy and to keep.

It gives twice the gasoline and oil mileage of many cars which it equals or surpasses in speed.

Its tires cost less and last longer.

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In it, space engineering has provided generous room for five adult passengers, without unwieldy length and costly weight.

So different and better is Chrysler handling and Chrysler performance, that, in the words of one wealthy owner, "it discourages one from driving anything else."

There is a vast difference between the pleasure of driving an ordinary motor car, and the genuine delight with which its owners drive the Chrysler Six.

That difference — that far superior performance — originates in the fact that the Chrysler Six is an entirely new type of car, built on a new type of engineering, which produces results radically different from any heretofore registered.

Chrysler owners no longer are amazed that they can now enjoy the greater convenience and utility of two automobiles —because they have proved that they can own and operate two Chrysler Six cars for approximately the cost of owning and operating one heavy, cumbersome car.

If you are not personally familiar with Chrysler Six performance, you will find the nearest Chrysler dealer eager to have you put a Chrysler Six through its paces.

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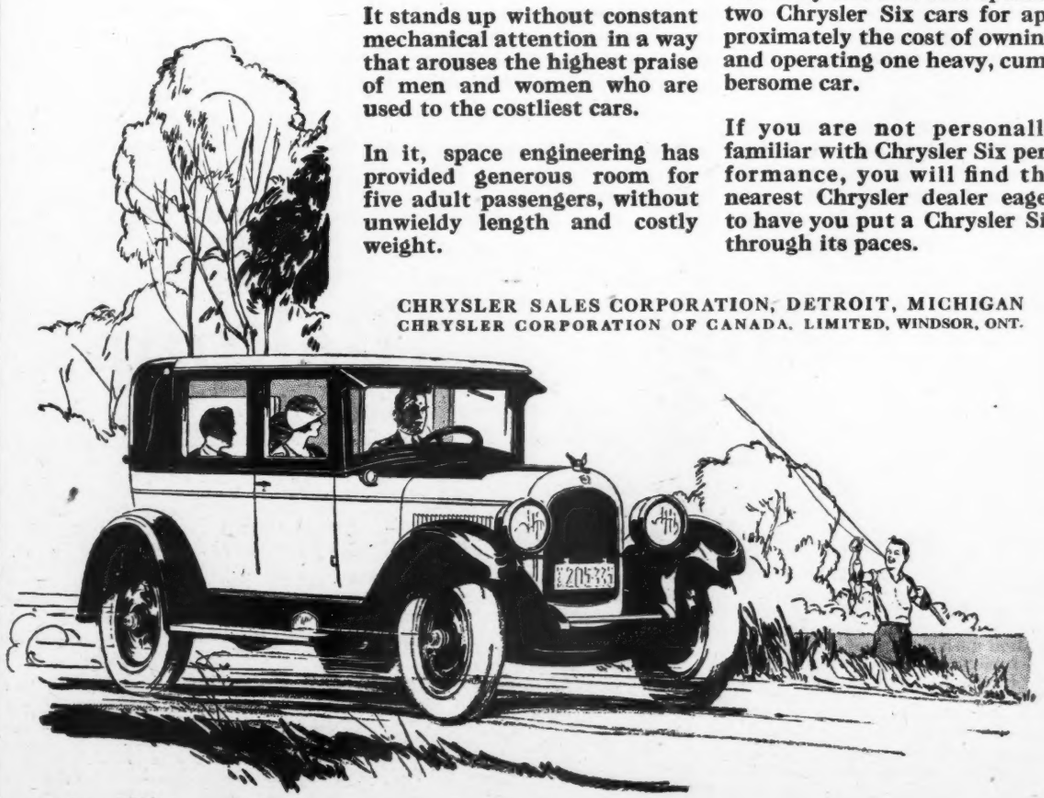
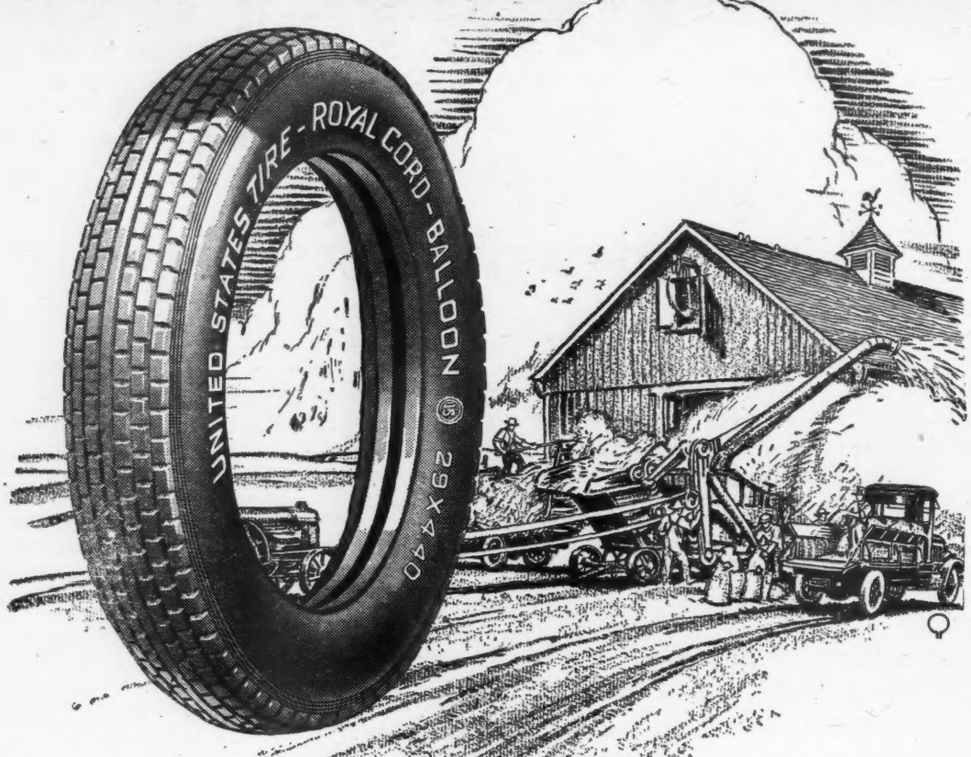


UNITED STATES TIRES ARE GOOD TIRES



Get the Full Benefit of True Low Pressure with U. S. Royal Balloons

For Ford Owners

There is a U. S. Tire to meet every need.

U. S. Royal Balloons
29 x 4.40 straight side

U. S. Royal Balloon-Type
31 x 4.40 clincher and straight side

U. S. Royal Cords
30 x 3½ regular and extra-size clincher, 30 x 3½ and 31 x 4 straight side

U. S. Royal Extra Heavy Cords
30 x 3½ clincher for commercial and extra heavy service

USCO Cords
30 x 3 and 30 x 3½ clincher, 30 x 3½ and 31 x 4 straight side

USCO Fabrics
30 x 3, 30 x 3½ and 31 x 4 clincher

IF you want the full comfort that the balloon principle is *meant* to give, you must not over-inflate your balloon tires.

If you pump them up too hard, you lose the cushioning effect that comes only with *true* low air pressure.

Yet many balloon tires cannot be run at ideal cushioning pressures without early, uneven and disfiguring tread wear.

This is not so with U.S. Royal True Low-Pressure Balloons.

Here are balloon tires that can be run at *genuine* low air pressure with perfect safety to the tires.

They have the new flat "Low-Pressure Tread"—a tread that distributes the weight *evenly* over the entire tread surface. It gives far greater area of road contact than is possible with a round tread.

U.S. Royal Balloons are built of Latex-treated Web Cord. This patented construction gives the great strength and flexibility essential to full balloon cushion and service.

Ride on U.S. Royal Balloons and you will really enjoy the greater riding comfort that you have been looking for in balloon tires—*plus long service.*

United States Rubber Company

Trade US Mark

U.S. Royal True Low Pressure Balloons

Built of Latex-treated Web Cord

Correct Principles of Sun-Drying Fruits

(*Continued from page 4*)

amount necessary to properly preserve the color of the fruit.

The principal effects of sulphuring are briefly described as follows: It "fixes" or "sets" the natural colors of fruits and prevents darkening by oxidation during the drying. This action is sometimes termed bleaching. This is incorrect, although dark spots on light-colored fruits are sometimes temporarily bleached. Sulphuring kills insects and the sulphurous acid prevents fermentation and molding during drying and storage. The absorption of sulphurous acid ruptures the cells of the fruit more or less and draws moisture into the pit cavity. This results in a more rapid evaporation of moisture during drying.

Moisture Content of the Product

A certain amount of moisture is essential to the development of the micro-organisms, such as yeast, molds and bacteria, which are the cause of spoiling and decay. Fresh fruits contain from 60 to 95 per cent of water and spoil rapidly, but if their moisture content is reduced by evaporation to between 20 and 25 per cent, such spoiling cannot occur. In practice, however, growers must dry fruits to a moisture content of 16 to 20 per cent in order that the fruit will be sufficiently dry to permit of the absorption of five to 10 per cent moisture during the necessary processing in the packing house, without increasing the moisture content to an amount which permits spoiling. It is not necessary to evaporate all the water in the fruit, because when sufficient water has evaporated that which remains forms, with the sugar in the fruit, what may be considered a concentrated syrup. The concentration of sugar becomes so high that it acts as a natural preservative in which micro-organisms are unable to develop.

As a result of sun-drying, fruits undergo material changes in color, flavor and texture to which the consumer has been accustomed and which have, therefore, become the trade standards. No loss of food value results from proper drying.

Air Circulation Aids Evaporation

Evaporation means the change of water from the liquid to the vapor form. The heat required for this change may be obtained by direct radiation from the sun or indirectly from air currents heated by the sun's rays. Without the absorption of a certain definite amount of heat for each pound of water evaporated, drying cannot take place. The water vapor driven off by this heat is absorbed by the surrounding air, but a given volume of air at a given temperature can absorb only a certain amount of water vapor. This emphasizes the importance of air circulation in removing the partially moisture laden air from immediate contact with the product being dried and in replacing it with drier air so that the air may not become saturated and prevent further evaporation. Summarizing the factors governing sun-drying, it may be said that the rate of drying will be the greater:

1. The higher the temperature of the air.
2. The lower the relative humidity of the air.
3. The more rapid the circulation of the air.

While in artificial drying these factors can be satisfactorily controlled, little control in sun-drying is possible except that in very hot weather the product may be dried by air currents in the shade, thereby avoiding the more intense heat of the direct sunshine. In sun-drying, most of the evaporation takes place during the day since at night the temperature of the air is lower, the relative humidity higher, and the amount of air movement usually less.

How the Drying Process Takes Place

After preparation, the trays of fruit are nearly always spread on the ground in the direct sunshine for one or more days according to the temperature and the particular practice followed. The first direct exposure warms up the fruit and quickly dries the surface. In addition, the sunlight causes an "after-ripening" of the color of fruits. This means that a uniform, deep, rich color is acquired by all the pieces of fruit. Fruit dried exclusively in the shade retains more nearly the original uneven colors of the fruit. Immediately after this first part of the drying, which results in the evaporation of from one to three-fourths of the moisture, the trays are stacked so that the remainder of the drying may proceed more slowly in the shade. This method, known as stack drying, has several advantages. The fruit will often be freer from wind blown dust. Protection from the direct sunshine results in a softer skin and prevents excessive darkening and loss of flavor. Since the final evaporation proceeds more slowly, the dryness of the pieces of various sizes more nearly approaches equality, and over-drying, with consequent loss in weight is avoided.

Characteristics of Well Dried Fruit

The characteristics of fruit when properly dried cannot be explained adequately and must be learned by experience rather than from printed directions. In general, however, it may be said that fruit is sufficiently dry when it is no longer soft, puffy or juicy in the center and yet is not so dry and hard as to rattle when the tray is shaken. It should not be possible to separate the skin by hand rubbing. It must be firm and yet uniformly soft and pliable like chamois skin. When a handful of the fruit is squeezed together tightly and then released, the individual pieces should drop apart readily. Although it is a fundamental fact that the lower the moisture content the better will be the keeping quality of the dried fruit, excessive drying merely results in a loss of weight and, therefore, of profit. Since most processing methods necessarily add a little water to the fruit before packing, it is obvious that the fruit must be sufficiently dry

to absorb this added moisture without exceeding the limits for spoilage.

It is impossible to have all the pieces of fruit on a tray dried to the same degree at the same time because of the lack of uniformity in the size, composition and preparation of individual fruits. Therefore, when most of the fruit is considered sufficiently dry for storage, it is emptied into large boxes or bins to undergo an equalization of moisture, commonly referred to as "sweating." During this process the moisture contents of over-dried and under-dried pieces of fruit are equalized either by direct absorption through contact or by translocation of the moisture by evaporation and absorption. This equalization, which also blends and standardizes the quality of the product, must precede the final processing and packing.

Storage Requirements

The storage place should be clean, dry, dark, well ventilated and protected from rodents and insects so that the fruit will suffer little or no deterioration during storage. As soon as the necessary equalization has been accomplished, which will usually be within two or three weeks, it is generally advisable to deliver the product at the first opportunity to the packing house for grading and storage.

Conclusion

In conclusion, it must be remembered that the welfare of every producer of dried fruits depends on a steadily increasing demand for his products. Let each grower observe the Golden Rule and give the same care to the production of fine quality dried fruits as he demands in the food products he purchases. The quality of dried fruit is fixed when it leaves the dry-yard and, although modern packing and merchandising methods are of great help, the quality of the product will determine the prosperity of dried fruit producers.

The Manufacture of Cider and Vinegar

(*Continued from page* 5)

cellar must be used. In that event the following would be a wise procedure. About a week or 10 days after the cellar temperature reaches 40 degrees Fahrenheit, close the barrels by driving in the bungs. Then in the spring when the temperature of the cellar reaches 50 to 60 degrees Fahrenheit, remove the bungs and add to each barrel of incompletely fermented cider one yeast cake which has been made into a very thin paste with water.

During the yeast fermentation a gas (carbon dioxide) is produced in large quantity, and this fact explains why the bung should be removed from the barrel. Upon cessation of gas formation, the fermentation may be judged to have been completed, provided, of course, that the temperature has not been too low. Any common hydrometer floated in fermented cider will register approximately zero at the close of the yeast fermentation. The fermented cider is now drawn off from the dregs and settlings and is placed in clean barrels for the next step in the operation.

Second Stage—Acetic Acid Fermentation

The acetic acid bacteria are the organisms which function during this stage. They convert one of the products of the yeast fermentation into acetic acid. They belong to that group of bacteria which require an abundant supply of air, and this fact must be kept in mind throughout this stage.

The barrels must not be more than two-thirds to three-fourths full. They should be laid on the side with the bung open. An auger hole one inch in diameter in each end just above the cider line will increase the air supply and hasten the action. All openings into the barrels should be covered with a double layer of cheesecloth or they may be loosely plugged with a bit of cotton; this method will prevent ready entrance of vinegar flies and other insects.

The Culture or Starter

A small amount of culture or starter should be added to each barrel. It is prepared as follows: Place a quart each of the fermented cider and good home-made vinegar in a wooden or agate vessel and set in a warm place. Within a few days a thin grayish or whitish looking membrane will have formed over the entire exposed surface. This is true "vinegar mother." It consists of the rapidly growing acetic acid bacteria. If a small amount of this membrane is taken up on a light splinter or on a shaving and dropped into the barrel, it will start the vinegar fermentation at once. The splinter or shaving will float the membrane of bacteria to the surface. These, with their natural food and plenty of air, will grow vigorously and within a few days will extend the membrane all over the free surface of the fermented cider. If the temperature can be kept around 70 to 80 degrees Fahrenheit, this stage of fermentation will be completed within three to six months. The period varies considerably, since it is determined by the temperature, air supply and amount of cider in the barrel.

The only method of determining the completion of this stage is to have the vinegar tested. Any experiment station will do this usually without charge.

When the fermentation is completed, the vinegar should show an acid content of four to six per cent. Various standards are required by the different states.

Third Stage—Ripening

Freshly made vinegar is very sharply acid and is lacking in characteristics, flavor, aroma and color. In order that it may develop its natural characteristics, and also to prevent possible disastrous secondary fermentation, the clean vinegar should be drawn off from the dregs and filled into clean barrels or kegs. These should be filled full, tightly bunged, and stored in a cool place for at least six months. With proper attention to temperature and air supply, it is possible to produce a well ripened vinegar in about one year. Low temperature and lack of air supply may extend this to two years.

WORLD-WIDE GOOD WILL

The United States Supreme Court has defined Good Will as "the disposition of a pleased customer to return to the place where he has been well treated."

Good Will is also the disposition of a customer to recommend a satisfactory product to his neighbors and friends.

It can be created by the printed word only in so far as that word reflects the integrity of the institution behind it.

Good Will is admittedly the most valuable asset that any business can possess. And no organization has so impressive a reason to appreciate the magnitude of its value as Dodge Brothers, Inc.

This value—this unprecedented and world-wide Good Will—is founded on a few old-fashioned principles of good faith and good workmanship which the world has come to associate with Dodge Brothers name.

Building ever better and better, Dodge Brothers have simply earned the trust and friendship of the public by consistently fulfilling public expectations.

DODGE BROTHERS, INC. DETROIT
DODGE BROTHERS (CANADA) LIMITED
TORONTO, ONTARIO

J. & H. GOODWIN, LTD.

Fruit Exporters

With our own establishments in all important fruit producing and foreign consuming centers, we are qualified to render a satisfactory marketing service.

Constantly in touch with one another, our houses in different markets, all administered by our own employees, work in an unselfish and unbiased manner with the idea of obtaining the fullest value for crops which are being handled. Attention is given to the establishment of steady demand for packs and brands of quality.

Our continued relationship with large cooperative associations is the best endorsement of our worth and capability.

Your Correspondence is Invited.

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LOCKPORT, N. Y.
WINCHESTER, VA.
YAKIMA, WASH.

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WATSONVILLE, CAL.
MONTREAL, CANADA

MANCHESTER, LIVERPOOL, HULL, LONDON, GLASGOW, SCOTLAND — ENGLAND

RELIABLE CONNECTION AT HAMBURG, GERMANY.

The Hunger of a Hundred Million Souls

The American farmer knows the meaning of a nation's hunger. It is he who has so well satisfied his country's need for food that there has grown another hunger—the hunger for progress which has made America leader of the world.

That is why each new improvement, each forward step toward better living meets with a floodtide of demand. Two million new consumers were served with electricity in 1924. The electric light and power industry has doubled its customers and service every five years.

Seven billion dollars is the people's investment in the electric light and power companies. And now, a billion dollars every year is needed to keep pace with the demand. New power stations are being built, larger than the most ambitious dream of ten years back; high power transmission lines too, converters and transformers, and, lastly, the lines which bring the current to the user.

The American farmer, feeding a hundred million souls, knows the cost of food in labor and equipment. To supply these hundred million with electric service also takes time and labor and equipment.

Devising methods for the extension of useful electric service to the farmer is the problem now engaging the thought of fifteen state committees co-operating with the national committee on the relation of Electricity to Agriculture.

The Committee on the Relation of Electricity to Agriculture is composed of economists and engineers representing the U. S. Depts. of Agriculture, Commerce and the Interior, Amer. Farm Bureau Federation, National Grange, Amer. Society of Agricultural Engineers, Farm Lighting Mfg. Ass'n, and the National Electric Light Association.

If you are interested in this work write for a booklet describing it.

NATIONAL ELECTRIC LIGHT ASSOCIATION

29 West 39th Street, New York, N. Y.

With the Co-Ops.

THE ANNUAL meeting of the Western New York Fruit Growers' Cooperative Packing Association, Inc., was held June 16 at Hilton. There was an attendance of about 200 and the meeting was one of the best the association has ever held.

The members were interested to meet Thomas E. Milliman, the new manager, who was recently employed. Mr. Milliman was raised on a farm in New York. He graduated from Cornell. He was county agent in Orange county, New York, for three years, following which he was Assistant County Agent Leader. Later he did successful organization work for the Dairymen's League. In a short talk at the meeting Mr. Milliman drove home a number of important points that won the approval of members.

Addresses were given by E. R. Eastman, Editor of the *American Agriculturist*, and R. C. Shreve. William M. Carr reported on the Federated annual meeting at Louisville.

Resolutions were passed by the delegates approving the work done by the board of representatives during the past year.

C. S. Wilson of Hall and Roy P. McPherson of LeRoy were elected to fill the two expiring directorships. The treasurer's and secretary's reports showed decreased expenses during the past year. A resolution was passed thanking the directors for their work during the year.

Many members expressed the view that the association has passed through an important period in the last year and that it is now in better shape for constructive progress than it has ever been since it was organized.

THE ANNUAL report of the California Prune and Apricot Growers' Association shows that $7,900,000 was paid to grower members from May 1, 1924, to May 1, 1925. A total of $572,000 was paid on funded debt, including a reduction of $260,000 in mortgages on plants. Payrolls were reduced by $357,000 and interest and insurance charges by $87,000.

During the year the advertising expenses were reduced from 0.31 cents to 0.25 cents per pound of product handled. During the last four years the advertising expenses per pound have been as follows: 1921, 0.27 cents; 1922, 0.32 cents; 1923, 0.31 cents; and 1924, 0.25 cents.

During the past year over $28,000 was collected as liquidated damages, 70 cases of contract violations being thus settled.

The retiring president stated that the association has gone through a difficult period. He pointed out that the association was started during the war period; that it paid enormous prices for too many packing houses; that it had suffered from mismanagement; that it had met with unfair and unjust competition; that it started without capital; and that it had sustained heavy losses. He recommended the sale of a large number of the packing plants, the expulsion of disloyal members, the building up of a reserve of at least $2,000,000; and an increase in membership.

The new president urged the sale of surplus packing plants and the creation of a growers' relation department in order to establish proper contacts with grower members. "We must send men conversant with the details of our business and with the problems of our members to the growers. These men must give the growers accurate and truthful accounts of things the grower wants to know. This is the member's business and he is entitled to the truth."

This statement by the new president indicates a clear conception on his part as to the principles of true co-operative marketing. Any association that is conducted on those principles and which uses sound business methods is certain to succeed.

FOURTEEN students taking a course in co-operative marketing at Purdue University liked the work so well that they attended classes at seven a. m. in order to get the course. The schedule could not be arranged at another hour so as to suit the convenience of all students interested. The regular courses begin at eight o'clock.

The course, which was given for the first time during the past year, was taught by Dr. W. E. Paulson, specialist in marketing. Studies were made of the leading co-operative associations in the United States and Europe, including their history, plan of organization, method of operation and the results obtained from their work. Reasons for the successes and failures of various co-operatives received attention, and a study was made of different co-operative laws.

JUDGEMENT for $288,000 was given the California Prune and Apricot Growers, Incorporated, on July 8, by a New York federal court against W. A. Higgins and Company of that city. The action on which this huge award to the association was based has been pending since 1920, when W. A. Higgins and Company refused to complete contracts covering prunes sold them by the association.

This sum of money will become available for distribution to the members of the association who delivered prunes of the 1920 crop, provided collection can be made in due course.

J. M. Parker, new general manager of the association, stated recently that the association officials were naturally delighted at the favorable result of the suit and the large damages awarded the association, but he went on to point out that damages awarded and awards collected were two different things. He said that every effort would be made looking toward the prompt collection of the amount awarded.

THE RAISIN growers of California faced a breakdown of their organization three years ago, but thanks to the level-headedness and determination of large numbers of them, the organization has been saved and is now apparently on a sound footing. The reorganization period, which began three years ago, ended on July 1.

Under the present plan, there are three organizations. The Sun-Maid Raisin Growers' Association of California, which is composed of grower memberships, receives the raisins, borrows money on the crop, makes advances to growers, supervises the service organizations which make Sun-Maid products, and makes returns to growers.

The Sun-Maid Raisin Growers' Association is owned by the above association; it manufactures the Sun-Maid products; and it administers the operating capital of the growers' cooperative. It is organized under the Delaware laws.

The third organization, called the Sunland Sales Co-operative Association, sells the Sun-Maid products, as

well as the products of other co-operatives desiring sales service through its world-wide organization. It operates on a non-profit basis.

The plan has proved itself a clear, legal, simple and efficient method of organization, according to Ralph P. Merritt, President and Manager.

THE FLORIDA Citrus Exchange completed its reorganization program at the annual meeting in June and is now proceeding under the new program. One of the important changes consisted in the creation of the office of General Manager. C. C. Commander is filling this position. A production department has also been established and Gen. A. H. Blanding is filling that office. He will have general charge of field activities, standardization, organization activities, and the co-ordination of the work of associations and sub-exchanges. Other departments will continue as heretofore, with the same personnel.

The officers elected are as follows: E. L. Wirt, President; F. C. W. Kramer, John A. Snively, L. W. Tilden and Walter R. Lee, Vice-Presidents; O. M. Felix, Secretary; and W. F. Covode, Cashier.

The executive committee consists of F. C. W. Kramer, A. E. Barnes, John S. Taylor, L. M. Hammel, L. W. Tilden, John A. Snively, and H. E. Cornell.

L. C. Edwards, D. C. Gillett, Fred S. Ruth and W. E. Lee were elected as special directors because the tonnage of each of them is sufficient to render them eligible for representation on the board. Besides the departments mentioned, the sales department will be headed by George A. Scott, the advertising department by John Moscrip, and the traffic department by E. D. Dow.

THE MUTUAL Orange Distributors of Redlands, Calif., recently won the majority of prizes at the Fifth Annual California Valencia Show held at Anaheim. Besides winning the special prize for the best and most artistic rack of varieties, the M. O. D. won 13 cups out of 18 offered; $535 of the $890 offered as cash prizes; one green ribbon; 21 blue ribbons; 11 red ribbons; one white ribbon; and 34 award certificates. The exhibit was designed and arranged by W. H. Blodget, Jr., assisted by H. H. Ford, Jr., F. S. Ruggles, and others.

It takes good fruit to win such prizes. The fact that the M. O. D. won these prizes is evidence of the quality of the fruit produced by its members. Quality fruit must go hand in hand with the development of better marketing methods. The leaders and members of the M. O. D. apparently appreciate this matter and they are to be congratulated on their success.

AN INTERESTING decision was recently reached in the Kentucky State Court of Appeals. The state co-operative marketing law was upheld and in addition the association was allowed damages of $500 and attorneys' fees from the Liberty Warehouse Company, which, according to the suit, encouraged contract violation. The attorneys' fees were placed at $100. The Circuit Court had previously decided the case in favor of the association but the warehouse company appealed the case to the higher court.

AS STATED previously in these columns, the California Peach and Fig Growers' Association conducted a reorganization campaign during the past few months. The contracts provided that 80 per cent control was to be secured before they became effective. Only 55 per cent of the peaches and 68 per cent of the figs were signed up. The committee of 38 secured waivers from such growers as were willing to proceed on the smaller tonnage and it has been definitely decided to go ahead.

The exact tonnage now under control has not been announced. The association will confine its activities to territory extending from the north line of Stanislaus County south through the San Joaquin Valley. No operations will be conducted in Sacramento Valley counties, San Joaquin County or the Santa Clara Valley, as the tonnage under contract in these places was insufficient to warrant operations.

A TOTAL of 1,360,404 pounds of fruit was handled by the Producers' Co-operative Packing Company, Salem, Ore., during the 1924 season. Of this amount the prune tonnage exceeded all other commodities, being 541,153 pounds. Blackberries totaled 216,550 pounds; loganberries, 237,491 pounds; Bartlett pears, 147,597 pounds; gooseberries, cherries, raspberries, and plums making up the remainder.

The enterprise was organized in 1921 as the Producers' Canning and Packing Company. During the first season it handled 4,021,015 pounds of fruit, and the second year 2,702,315 pounds. When the company was first organized the buildings and equipment were very inferior and the stock had a doubtful value of $40 a share. Today it has a modern plant, valued with equipment at $62,109, outstanding capital stock of $72,700, appraised at $114 a share, no debts, and a reserve of $10,490.

A COURSE in co-operative marketing law will be added to the regular curriculum of the University of Memphis this fall, according to Dean S. W. Jones of the law school. This is said to be the first college in the United States to teach the law of co-operation.

Abe D. Waldauer, Memphis co-operative attorney, is scheduled to take charge of the course. A class of 50 to 100 regular law students is expected.

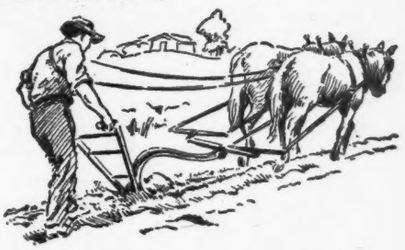
THE EXCHANGE Supply Company, the subsidiary co-operative purchasing organization affiliated with the Florida Citrus Exchange, held its annual stockholders meeting at Tampa, June 3. Practically all of the company's outstanding stock was represented at the meeting.

After receiving the report of Manager C. H. Walker, covering operations during the past year, the stockholders elected officers for the ensuing year. The number of directors was reduced from 15 to seven, and the following were named to serve on the board: Dr. J. H. Ross, Winter Haven; H. E. Cornell, Winter Haven; H. V. Pay, DeLand; A. J. Dozier, Arcadia; A. A. McLeod, Bartow; P. C. Peters, Winter Garden; and C. M. Berry, Sanford.

Dr. Ross was re-elected as President and Mr. Cornell was chosen as Vice-President. Mr. Walker was re-elected as Manager and C. G. Giles was re-elected as Secretary and Treasurer.

THE CALIFORNIA Pear Growers' Association was the first co-operative to flash an advertisement across the continent by the new telephoto process. The transmission required seven minutes and took place over telephone wires. The picture, which consisted of a photograph of two pears and some printed material, arrived in the New York office of N. W. Ayer and Son within an hour after the negative was taken in San Francisco.

"GOOD EQUIPMENT MAKES A GOOD FARMER BETTER"



"WHEN muscles ache, wash the pain away with pain oil," says an advertisement.

Why not drive a McCormick-Deering Tractor and do away with the *cause* of the pain? You will conquer the drudgery and be far better off in a dozen ways by investing in this popular tractor.

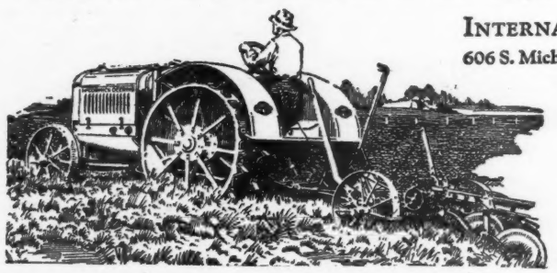
• • •

FARMING by old methods is hard, hard work but tens of thousands of farmers are fighting their way clear of the worst of it by using reliable tractor power. Not only are they doing farm work more easily but they are putting the farm on a *new money-making basis.*

No man can realize the full all-around value of the tractor until he uses one himself. Think of the time and work saved by turning two or three furrows instead of one. *Do two or three days' plowing in one.* Cut down high labor costs. Speed up your field work in rush reasons. Do not risk loss of your crops. Ten or twelve hours in the heat cannot hurt the McCormick-Deering.

And then belt work! McCormick-Deering tractors have plenty of power for threshing, silo filling, shredding, baling, sawing, grinding, etc., and they are designed as much for belt as for field work. Do your own work at just the right time and work for the neighbors, too, if you want to.

The McCormick-Deering tractor comes to you *complete* with all the necessary equipment—platform, fenders, adjustable drawbar, wide belt pulley, removable lugs, throttle governor, brakes, and provision for adding the great new tractor improvement, *the power take-off.*



INTERNATIONAL HARVESTER COMPANY
of America
[Incorporated]
606 S. Michigan Ave. Chicago, Ill.

SEE the tractor at the McCormick-Deering dealer's. Sit in the seat at the wheel to get the effect of running it. The dealer will demonstrate the tractor at the store or in the field. Drop us a line for a catalog.

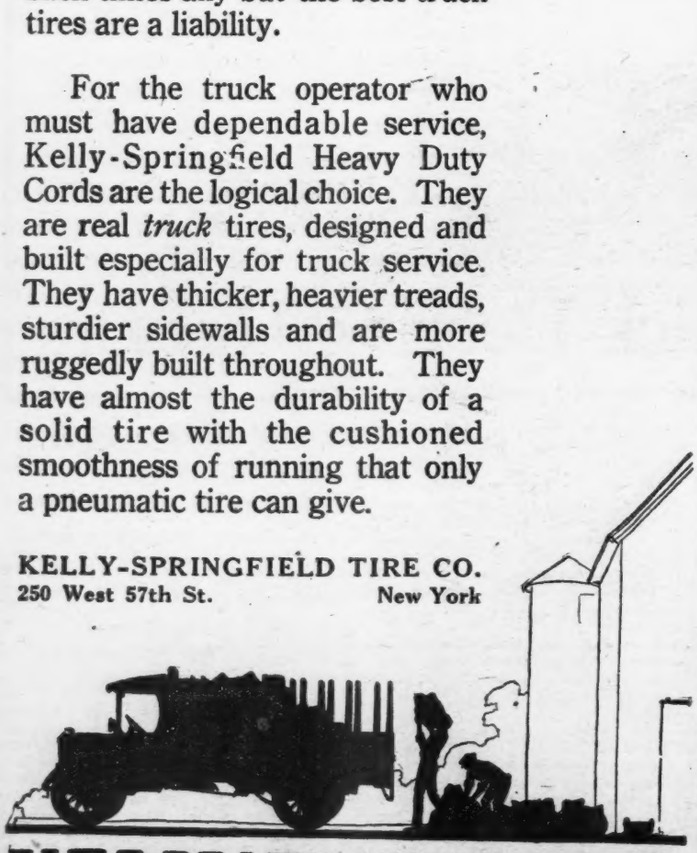
McCormick-Deering Tractors

When your fruit goes to market you need Kelly Heavy Duty Cords

The fruit grower needs truck tires that he can rely on absolutely when his product is ready for market. Fruit is perishable—even hours may be precious—at such times any but the best truck tires are a liability.

For the truck operator who must have dependable service, Kelly-Springfield Heavy Duty Cords are the logical choice. They are real *truck* tires, designed and built especially for truck service. They have thicker, heavier treads, sturdier sidewalls and are more ruggedly built throughout. They have almost the durability of a solid tire with the cushioned smoothness of running that only a pneumatic tire can give.

KELLY-SPRINGFIELD TIRE CO.
250 West 57th St. New York



KELLY HEAVY DUTY CORD

Markets and Marketing

PEACHES loom as one of the most important fruits to be marketed during the five months, June to October, inclusive. The 51,700,000 bushels grown last year had an estimated farm value of $66,000,000. The peach crop usually has a value about equal to that of oranges, but ranks below grapes and apples. The total apple crop is worth more than $200,000,000 at the farm, while grapes range between $70,000,000 and $100,000,000. In the order of volume, 1924 carlot shipments of leading fruits and melons ranked as follows: Apples, 113,000 cars; oranges, 75,700; grapes, 68,500; watermelons, 45,500; peaches, 39,400; cantaloupes, 29,000; grapefruit, 19,500, and pears, 16,000 cars. Movement of peaches in carlots usually is only 30 per cent of the total production of this fruit. California grows nearly one-fourth of all the peaches in the United States, but cans almost half of its crop and dries a considerable proportion.

Georgia is the most important peach state, with the exception of California, and last year shipped about 13,500 cars of its bumper crop of 8,342,000 bushels, or approximately 21,000 carloads. Unfavorable market conditions prevented the marketing of a large part of the production. The present season's probable shipments are estimated at 12,800 cars from a crop much lighter than that of 1924. Fruit excellent in size and quality is expected. Hileys are especially promising. Elbertas and Georgia Belles will have a relatively light crop. The season is about two weeks early on all varieties. Mayflowers began moving on May 14. These, together with shipments of other early varieties, had filled 315 cars to May 30, compared with only 25 cars from Georgia to the same time last season. Carmans were expected to start about June 10, Hileys by the fifteenth, and Georgia Belles and Elbertas the last week of June or early July. Mayflowers declined in New York City to a range of $2.50-$3 per six-basket carrier, and Red Birds were jobbing at $6-$7. Cincinnati quoted Uneedas at $3.25. First arrivals of North Carolina peaches sold in Washington at $3-$3.50, with top of $4 in Baltimore. Movement had started from Texas and Oklahoma also.

The 1924 peach season was unusual in that 10,420 cars, or 77 per cent of Georgia's entire output rolled to market during July, compared with the customary 4000 to 6000 cars during that month. Supplies of cantaloupes and watermelons also were heavy, thus increasing the difficulties for Georgia growers and shippers. California's 1924 movement of fresh peaches ranked next to that of Georgia, totaling about 7200 cars. New York shipped 3400 cars of this fruit, and Arkansas 2800. Other states forwarding from 1000 to 2000 cars each were Colorado, North Carolina, New Jersey, Utah and Illinois. The 39,400 cars from all shipping sections exceeded by 1000 cars the highest previous record, established in 1922. Conditions on May 1, 1925, indicated only 69 per cent of a normal crop in the southern states, as against 79 per cent the year before, and northern producing sections suffered to some extent on account of recent cold weather.

THE PROPORTION of carloads of Pennsylvania-grown grapes sold within the borders of the state last year was larger than for any other fruit. According to the United States Bureau of Agricultural Economics, Erie county, which is Pennsylvania's grape producer, shipped 1165 cars during the fall of 1924. Over one-third of these shipments were absorbed by Pennsylvania markets, the majority having moved through Pittsburgh and Philadelphia. An additional third went to New York communities, and the remainder rolled to outlets principally in New Jersey, Massachusetts, Ohio and Illinois.

Studies made by the Bureau of Markets, Pennsylvania Department of Agriculture, showed that 8309 cars of grapes from all states were unloaded last year in 15 markets of the state. In addition to this, many cars went to numerous smaller markets for which figures are not available.

Seventy per cent of the grapes shipped into the 15 surveyed cities last year were from California. It is estimated that the freight and refrigeration charges on the 5908 cars from the Pacific Coast state were about $4,000,000. Three-fourths of this California business was done in Philadelphia and Pittsburgh.

New York ranked second as a shipper of grapes to Pennsylvania markets. Last year 20 per cent of the total, or 1640 cars, were reported from that state. Michigan has been a consistent grape shipper to this state during the past two years, the records for 1924 indicating 392 cars compared with 384 cars for 1923.

Although Ohio ranks fourth in grape production in the United States (just ahead of Pennsylvania), it does not rate high among the carlot shippers and last year sent only 18 cars to this state. This is because Cleveland and other nearby centers drew heavily on the Ohio stock.

STRAWBERRY growers in southern Missouri shipped 1500 carloads of strawberries to market during the present season. Growers received about $3,000,000 for the product. The average price was $4.70 per 24-quart crate. The crop was about two weeks earlier than in 1924 and three weeks earlier than in 1923. The acreage for 1925 was about 13,000 as compared with 11,000 in 1924, according to George Prince of the Monett office of the United States Bureau of Agricultural Economics and R. L. Barrett of the Missouri College of Agriculture.

AT A MEETING recently held in New York, preliminary plans were laid for the organization of a New York Food Marketing Research Council. The meeting was attended by representatives of the Bureau of Agricultural Economics, the Port of New York Authority, Cornell University, New York State Department of Farms and Markets, New Jersey College of Agriculture and Experiment Station, New Jersey Bureau of Markets, and Columbia University.

All present approved such a council. Each institution desiring to cooperate is to indicate in writing its willingness to join the council and designate the representative. This preliminary body is to revise the plan of organization and send the revised plan to the member institutions for criticizm. A formal organization meeting is to be called properly in May or June.

THE GOVERNMENT crop report, issued on July 10, shows better fruit crop conditions than was anticipated some time ago.

The total crop of apples will be below that of last year, while the commercial crop will be larger than the crop harvested last year and almost as

large as the five-year average. There will be about two and one-half million barrels more of boxed apples than last year but the barreled crop will be about 1,000,000 barrels short of last year's crop.

The peach and pear crops will be a little below those of last year and practically the same as the five-year averages.

The grape crop, because of the favorable conditions in California, will be about 32 per cent larger than the crop of last year and about 15 per cent above the five-year average.

The following table gives the estimates of important fruits in the government crop report for July as compared with the final estimates for 1924, and the five-year averages:

CROP REPORT FOR JULY.
(All figures in thousands.)

	Est. July 1, 1925	Harvested 1924	Harvested 5 yr. av. 1920-24
Apples, total crop, bu.	157,000	179,000	182,000
Apples, com'l crop, bbls.	29,230	28,701	30,400
Peaches, total crop, bu.	46,835	51,679	46,500
Pears, total crop, bu.	17,298	17,961	17,100
Grapes, tons	2,348	1,777	2,030

THE FOLLOWING summary of the fruit marketing situation was furnished by the United States Bureau of Agricultural Economics on July 10:

"The usual summer trend of the fruit and vegetable market is in the direction of more carlots and lower prices. This year is no exception although the market is nevertheless on a generally higher price level than last season. Supplies are moving at the rate of 15,000 to 20,000 cars a week. Shipments are not necessarily light all the time in years of crop shortage. Dependence on distant supply is all the more complete in such seasons and produce is quickly and thoroughly cleaned up in the shipping regions. Carlot movement has shown about its usual summer activity with volume mid-way between the light supply of spring and the peak movement of October.

"Hot, ripening weather brought forward liberal quantities of melons, plums, berries, peaches, apples, lettuce, cucumbers and celery, in the first part of the season. The same kind of weather has sharpened the demand for the fruits and salad vegetables and has kept their market active.

"Yet the brisk movement in some lines did not conceal the effect of reduced production. Shipments of some standard products have been falling well below last season's figures, especially for potatoes, cabbage, onions, peppers, tomatoes, berries and oranges. The total shipments of fruits and vegetables, as usual, may be expected to increase progressively during the next three or four months, but crop reports would suggest peaks of movement lower than last season with correspondingly stronger general market position.

"Earliness in crop production favors the seller through distribution of less produce over a longer period. Moderately active conditions in the various lines of commerce and industry strengthen the buying power of consumers. Workmen steadily employed at high wages seldom stint the dinner table.

"New apples began early, which would tend to lengthen the season for the main crop to the same extent. A score of states have started shipments of early varieties, but southern Illinois and Delaware furnished the bulk of early carlot supplies. Prices opened high at $3 to $4 per bushel, but soon declined to near the $2 level and close to the average of a year ago. The old season closed with well above 100,000 cars shipped, or about three-fourths the movement of the season before. Close to half the total was supplied by Washington, New York and Virginia. For the coming season the Far West seems likely to gain in shipments at the expense of the South and East, owing to losses by frost, drought and poor set of fruit in many sections.

"Pears will be a short crop except for the Far West, and there should be room in the market for all the eastern supply, even for the Kieffers which are so hard to sell in seasons of full crops of fruit. With enough rain in August and September to give size, the orchard fruit outlook would not be bad in the northern states.

"Strawberries were about a two-thirds crop compared to last season but the prices were good. It is still possible that in the South a good sized acreage may be set in the summer and all that will bear next year, but spring planting is a general rule in the whole strawberry section. Raspberries, currants and gooseberries, too, have become light and could stand a little extension of planting. As for the cherry, this fruit never has had half the attention it deserves from growers. Only a beginning has been made in producing for quality, or even for quantity, and in developing a market.

"Early supplies of peaches have been chiefly from Georgia, North Carolina and Texas. With the appearance of the larger and more attractive later varieties in July, the demand showed some improvement. Early varieties sold mostly at $1.50 to $2 per bushel or carrier in northern cities, and the intermediate and late varieties at $2 to $3.50, with a general range of $1 to $2.25 at southern shipping points. Over 5000 carloads were shipped in June, but movement was decreasing in July. The crop is reported light in Virginia, Delaware and Maryland, but fair in New Jersey, New York and Michigan. California has a large crop and may ship heavily if prices are high. No heavy supplies are expected from the Rocky Mountain section, the peach crop there having suffered severely from weather conditions."

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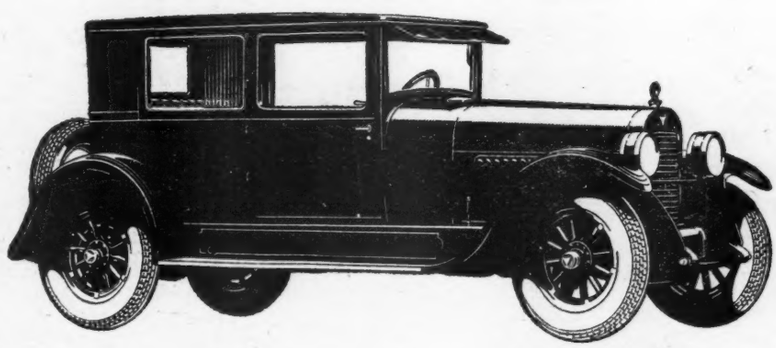

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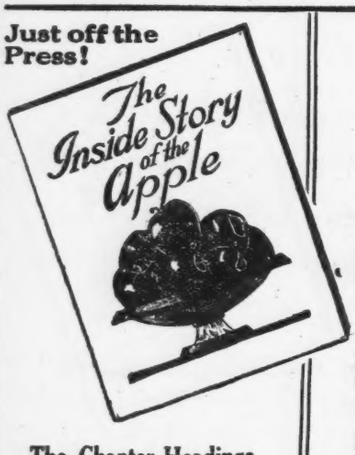

The Chapter Headings

The Leaves and Their Uses.
The Formation of Fruit Buds
The Alternate Bearing in Apples
The Setting of the Fruit
The Development of the Fruit
Picking and Storage of the Fruit

The Inside Story of the Apple

by J. R. Magness

United States Department of Agriculture

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The Editor's Mail Box

Government Regulations for Cider and Vinegar

AMERICAN FRUIT GROWER MAGAZINE: Can I make cider and vinegar for my own use? What are the government regulations about this? I don't want to get myself into trouble.—W. L. K., West Virginia.

ANSWER: The question you ask has caused a lot of discussion. The government has modified its early rulings in this matter so that now a grower can make cider and vinegar for his own use. The government ruling is as follows:

"Any person may manufacture non-intoxicating cider exclusively for home use without permit. This cider may be made either at home or at a custom mill.

"Vinegar exclusively for use in the home of the manufacturer thereof may be manufactured from cider and other fruit juices without permit as provided by Section 610. Juice manufactured for home use which has fermented and is not required for home vinegar may be sold to a vinegar manufacturer who has permit to purchase."

Complete regulations concerning the manufacture of cider may be secured by applying for Regulations 60 from the Federal Prohibition Director at your state capital or from the United States Bureau of Internal Revenue, Washington, D. C.

Control of Cherry Leaf Spot

AMERICAN FRUIT GROWER MAGAZINE: The leaves on my cherry tree have nearly all fallen off. Can you tell me the cause of this trouble? Is there anything I can do to help my trees during the remainder of this season? What shall I do to prevent defoliation next year?—R. E. W., Michigan.

ANSWER: Your trees are apparently affected with cherry leaf spot. It is one of the most common diseases of the sour cherry. Small brown spots form on the leaves early in the summer and the leaves soon turn yellow and finally fall off. Many trees are defoliated by the middle of August.

The leaves are the food manufacturing centers of the plant and it is therefore evident that when the disease causes defoliation it seriously interferes with the health of the trees and is quite likely to reduce the crop for the following season.

Fortunately this disease can be effectively controlled by proper spraying. In addition to a winter dormant spray of lime-sulphur solution, you should use two summer sprays of lime-sulphur solution diluted one part to 40 or 50 of water. The applications should be made at intervals of two weeks, starting immediately after the crop has been picked. This treatment will control the disease and will enable the trees to hold their foliage until the normal time for dropping of the leaves.

Line Shaft or Individual Motors

AMERICAN FRUIT GROWER MAGAZINE: I am planning to construct a packing house for use this fall. I want to install one grading machine now, but later I may enlarge the building and put in another grader as well as other machinery. Will it be best to have individual motors for each machine or will it be better to install a line shaft and run all machinery by belts from it?—R. E. K., Arkansas.

ANSWER: In general you will find it better to have an individual motor for each machine. Particularly will this be true if you can use electric power. You will probably want to run only one machine most of the time. By having one motor for each outfit, you can save the expense and wear which results from running the whole shaft when only one machine is needed. Furthermore, if you have a line shaft and something goes wrong with the main power plant, all of your machines will be out of commission. Under the individual motor plan, you can run the other motors if one is out of commission. Again, the use of individual motors gives you more latitude in placing your machinery. Individual motors will probably cost a little more than one large motor, but you will save the price of the line shaft, and the small motors can now be purchased at very moderate cost.

Lice on Cucumbers and Muskmelon

AMERICAN FRUIT GROWER MAGAZINE: Please tell me how to control lice on cucumbers and muskmelons.—J. A. K., Ohio.

ANSWER: You can control the lice effectively by spraying with nicotine sulphate, one part by volume to 800 or 1000 parts of water. It is a good thing to add about one-half pound of resin soap to each 50 gallons in order to make the material spread better and to adhere better to the foliage.

Since the lice live on the under surfaces of the leaves, you will need to use a spray rod and nozzle with bent shank in order to reach them. The insects do not eat but secure their food by sucking the juices from the cells of the leaves. They must be controlled by some material that will kill by contact. Fortunately their bodies are tender, and the nicotine sulphate will kill them readily if it reaches them.

You should use a nozzle with fine cap. The writer has found the single Vermorel a good one for this purpose. Use rather high pressure in application in order to convert the spray to a mist so that it will reach all parts of the leaves.

Thinning Fruit

AMERICAN FRUIT GROWER MAGAZINE: In my apple orchard the trees are heavily loaded on the south side, but there is a light crop on the northwest sides due to the cold, driving wind in May. The setting of fruit is quite light on the north side of the trees in the north row of the orchard. Do I need to thin the fruit on the south side? Will not the apples on this side size up well because of the light crop on the other side of the trees?—J. A. S., Indiana.

ANSWER: According to recent investigations in plant nutrition, the food supplies in a tree are largely localized. In other words, the food manufactured by a certain branch is used to a large extent by that branch. There is undoubtedly some movement of food materials from one part of the tree to other parts, but this movement does not seem to be of great importance.

With this evidence before us, it would seem advisable to thin the apples on the south side of your trees about the same as if a large crop was being produced over the entire trees.

Increase in Apple Plantings

AMERICAN FRUIT GROWER MAGAZINE: I am thinking of setting out an apple orchard and I should like to know the acreage of young commercial apple orchards that have been planted since 1918.—R. G., Indiana.

ANSWER: It is impossible to tell you how much the planting of fruit trees has increased since 1918 in the United States, as there are no figures available on the matter. The United States census is taken every 10 years and there are figures available for 1909 and 1919, but not for the other years. The 1919 census showed a distinct decrease in the number of bearing fruit trees since 1909.

There is every reason to believe that the planting of fruit trees has increased greatly since 1919. There have been large plantings in almost every fruit producing section. Of course, some of these trees will never reach bearing age, due to poor care, but nevertheless it is reasonable to believe that the plantings have been increased appreciably.

An agricultural census was taken during December, 1924, and I presume that the figures from this will be available sometime during 1925. These will show definitely the amount of increase in fruit plants, if any, since 1919.

The Evaporated Fruit Industry

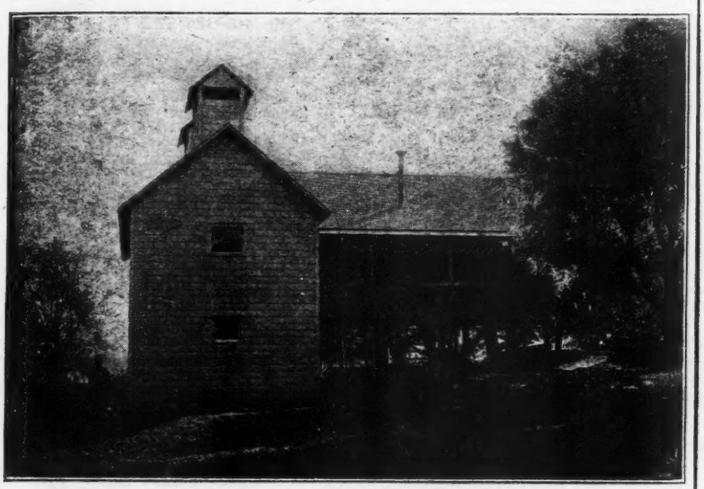
(*Continued from page* 3)

their primary business of growing fruit for market. The grower realizes that he may expect a profit only when his plant can produce a large output with low labor cost and a small permanent investment. The kiln type evaporator offers this combination, hence practical operators adhere to it. Its most serious disadvantages are being overcome by substitution of non-burning construction or steam heating for wooden buildings and direct heat, and by more attention to the construction of ventilators and air inlets.

The Cabinet Evaporator

The cabinet type of evaporator, which was one of the most popular and widely used driers prior to the introduction of the kiln, has passed out of use as a commercial machine except in certain districts of California. It is there generally called a "Chinese drier," for the reason that it is generally employed by Chinese, who have a practical monopoly in the evaporation of apples in the Sebastopol and Watsonville districts.

The cabinet evaporator consists of a chamber or series of chambers, provided with ventilating openings at the top and heated from beneath by a furnace or steam pipes. The sides of each chamber are provided with cleats for supporting trays, which are pushed in one above the other in the fashion of a chest of drawers, through a door which forms one side of the chamber. Warm air enters at the bottom of the machine, passes through the series of trays as it rises, and escapes at the top. Drying is consequently most rapid at the bottom and progressively slower above as the air becomes cooler and more nearly saturated with moisture. In order to secure uniformity in the rate of drying, it is necessary to shift the position of the trays from time to time, and constant watchfulness is necessary to avoid overheating of the bottom trays. This is partially overcome in steam-heated cabinets by distributing the heating pipes at several levels through the height of the drier, instead of leaving them all together at the base. This brings about another difficulty. The air towards the top of the chamber is approximately saturated at a high temperature, and the fruit consequently tends to become cooked rather than dried. Because of the impossibility of securing uniform drying, and the large amount of labor involved in its operation, the cabinet evaporator has been superseded by other types, except among the California Chinese, who continue to operate it with a minimum of labor-saving equipment.



Typical kiln evaporator building. The preparation room is in the ell at the right. The kilns are in the main part at the left

The Prune Tunnel Evaporator

In the states of the Pacific Northwest the prune tunnel evaporator is employed wherever prunes are grown, and when berries and apples are also produced they are also dried by its use. This type of evaporator owes its name of "tunnel" to the fact that the drying chamber is a long, relatively narrow affair, usually 20 by 24 feet long, three feet in width, and five by seven feet high. Both floor and ceiling are inclined from about one and one-half to two inches per foot of length, so that one end of the tunnel is 30 to 48 inches higher than the other. At the lower end, an opening three by four feet is left in the floor, the heating furnace being placed directly beneath it, while a ventilator is placed in the ceiling at the opposite higher end. In the larger plants tunnels are constructed in groups of three, each group being heated by a single large furnace supplied with coils of pipe, much as in the kiln. Wooden or metal strips fastened to the side-walls and extending through the length of the tunnel support the trays. These strips are inclined parallel with ceiling and floor and are placed four or five inches apart, so that the tunnel carries 15 to 20 tiers of trays. In operation, trays of fresh material are inserted at the higher end of the tunnel, those already in place being pushed down the width of one tray to make room. The inclination of the cleats which support the trays makes this possible. As this is repeated, the tunnel has at the lower end trays of material which are nearly dry, and which are receiving the full heat of the furnace, while behind these are successive tiers of trays each filled with material containing more of its original water content. As the temperature at the ventilator end is usually 30 to 35 degrees lower than that at the opposite end, this arrangement prevents overheating or partial cooking of fresh material by exposing it at the outset to air of moderate temperature and fairly high moisture content. As drying proceeds, the trays are moved forward into warmer, drier air merely by pushing them along the runways. The operation of the drier is continuous, since trays of finished product are constantly being removed at the lower end, thus permitting insertion of fresh material at the upper end as rapidly as it is prepared.

A simple but ingenious method for distribution of heat between upper and lower tiers of trays is employed. When the lowest runway is filled, the trays are pushed down only until the edge of the foremost one is flush with the air inlet in the floor. The next tier of trays is pushed down until the edge of the foremost tray projects two or three inches beyond that of the one on the first runway. This arrangement is repeated on each of the other runways. In consequence, the edges of the successive tiers of trays form a series of baffle plates projecting over the warm air inlet. The ascending column of warm air, striking these, is forced to pass into the spaces between the tiers of trays. As the trays in a tier are pushed closely together and are covered with a layer of material approximately an inch thick, they form partitions through which the air cannot readily pass, and it must therefore move between the trays to the upper end, where the offset arrangement of the trays permits its escape into the ventilator shaft. Consequently, there is a constant flow of a current of warm air over both upper and lower surfaces of every tray. The upward inclination of the runways aids in maintaining the air movement.

The tunnel evaporator, by reason of the features just described, is free of the disadvantages of both the kiln and the cabinet types. The poor circulation of air, local overheating of material, and rehandling of trays during drying, which are characteristic of the cabinet, are avoided, while the absence of necessity for stirring during the drying makes it possible to get a larger percentage of perfect rings and a more uniform product than with the kiln. The heat supplied is also

(*Continued on page* 19)

GMC

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The Orchard Home Department

By Mary Lee Adams

One Year Old and Under

IMPERSONAL, and remote as the Government, with a capital "G," sometimes seems, it enters right into our lives and hearts when we find the Children's Bureau making a study of 23,000 babies from birth to the age of one year, in the effort to lessen the dangers to which these frail and precious little lives are subjected.

Dr. Robert M. Woodbury, in his report of the findings of the bureau, convincingly sets forth the advantages of such study. He says, "A thorough knowledge of the causes of infant mortality is the first step toward their complete control. In the light of such knowledge, preventive measures may be intelligently planned ....."

The planning of these measures must be left to professionals, but mothers of young babies will find a number of interesting facts brought out in the report. Some are more or less generally known while others are in direct contradiction of commonly accepted ideas.

The very usual impression that the younger mothers produce the healthiest babies is dispelled by the statement that there is no perceptible difference in the vitality of babies born of mothers between the ages of 20 and 40. The first-born, in the group of mothers under 20 and over 40, show a slightly inferior resistance.

Of the number of babies that failed to survive one year of life, 44.8 per cent died in the first month, and this rate fell rapidly until the twelfth month, when 4.5 per cent of the total deaths occurred. This shows the amazing increase in strength during each month of the first year. For the decidedly higher rate of mortality among boy babies, no reason can be found save that at this age the vitality of the female infant is about one-fourth greater than that of the male.

August is the best month for the baby to arrive while, surprisingly, June gives the poorest chance. This may be because June babies must at the tenderest age go through the long heat of summer, while September offers speedy relief to August babies.

The health of the mother is reflected in the high mortality among infants born of tubercular mothers. A four-year or longer interval between births is found to give the infant the best chance of survival, while premature babies die at the rate of six to one in comparison with other babies. Artificially fed infants perish at the rate of four to one in comparison with the breast fed. Twins and triplets are less fitted to survive.

Jewish babies are the sturdiest, and those of native white stock rank next. That babies suffer where there are too many mouths to feed, is stressed by the following conclusion from Dr. Woodbury's report: "Irrespective of all other factors, it was discovered that infant death rate varied inversely with the earnings of the father."

Health, Weight and Age

POSSESSION of perfection in health and weight goes far toward mitigating the drawbacks of age. Doctors now tell us that if we have either health or weight just right, we are pretty sure to have the other right also. Health is largely dependent upon proper weight. Not proper weight for your years, says the modern doctor, but proper weight for your inches, be your age 20 or 50.

In relation to health, it is most important that the young should not be underweight nor the more elderly overweight. Let the substantial matron and the too filmy flapper beware. It's encouraging to the woman with a tendency to overweight to be told that it is folly for her to assume that she cannot expect to have the figure of a young girl.

She can and may if she will live in accordance with the rules of health. If she will regulate her diet and her exercise she can keep the proper weight that attends upon health. Personal observation leads me to believe that the over-heavy woman offends most frequently by neglecting regular exercise.

Even those rare characters with the determination to stick to a diet, find too many obstacles to regular exercise. Naturally, there are many such obstacles in a busy woman's life, but the very greatest of these is disinclination to make the necessary physical exertion.

Dr. Alsop, widely experienced physician of Barnard College, adheres firmly to the opinion that weight and health are largely interdependent and controllable. Having been impressed by the common sense of her writings, I inquired something of her from one of the slim and pretty Barnard girls.

The answer indicates that the doctor is a living advertisement of the wisdom of her theories and practices. She is slender, youthfully supple and energetic. Hovering around 50, she looks not a day over 35. How old will *you* look at 50?

Hide the Radiator

MANY orchard homes differ widely from the old time farm house, being not only picturesque and well-kept, but as entirely up-to-date in appointments as any city apartment. Modern bathrooms, telephones, electric light and labor-saving devices are in ordinary use. The furnace is as common as the wood fire used to be.

The ideal method of heating for both comfort and beauty is a good furnace supplemented by a wide fireplace where big logs may blaze on chilly days in early autumn before the furnace is started, or where fire may crackle at any time for added cheer.

But ugly radiators still often mar the attractiveness of otherwise charming rooms. Probably you've seen attempts to cover up the offending pipes with shelves or with seats of wood. This is always unsatisfactory. You can't keep them properly painted, and they warp in the heat.

Now special furniture of metal is made for the express purpose of concealing the radiator. It looks like wood and can be had in oak, walnut, mahogany or any finish to accord with the rest of the furniture. It would be a great pity for those who are now planning homes, to allow their pretty rooms to be marred by obvious radiators.

There's no comparison in artistic effect between a clumsy set of pipes against the wall and a long, low console with an inconspicuous lattice or grating underneath, or an inviting window seat caned or cushioned for comfort. The final triumph over the destructive effect of heat is a device for accommodating a pan of water under the lid of the concealing piece of furniture, which allows flowers to remain fresh while actually standing on top of the radiator.

Golden Days of Long Ago

IT'S endlessly amusing, and perhaps a bit depressing, to learn more of the civilizations of remote ages. What advance do we make even in frivolity, the foible in which this age is said to be proving itself sunk beyond example and almost beyond remedy.

The ancient palace of Kish, explored now after nearly 5000 years, reveals hand mirrors, paint and vanity cases, manicure sets and even children's toys. The eternal feminine, busy then as now with personal adornment and babies, was no doubt responsible for the toy dogs found in the children's nurseries. These human touches make us think that we might almost feel at home in such a place even today.

Curves make women angels, says the artist. So do grade crossings.

A Stitch in Time in the Flower Garden

EVERY fall I say to myself, "Oh! if I had only done such a thing last spring when I was planting my flower garden, how much better success I would have had." And every spring I exclaim, "Why didn't I attend to that last fall? But it's too late now." Each season has its duties toward our friends, the flowers, and we pay for every neglect.

Summer has almost flown and autumn will soon be upon us in earnest. The fate of the garden is pretty well determined for this season, but there is always another year. There is no better time than the present for learning, through recent past mistakes, how to secure happier results in future.

Find out now, while there is yet time, what you should do for the plants that are to be carried over the winter. Time flies, and before you know it, it will be too late to prepare properly for the long sleep that is coming to our garden darlings.

In spite of the popular term "summer vacation," the orchard woman's holiday (if any) is more apt to be in winter. So through the months of summer she remains in her orchard home and dreams of a possible cold weather flight to Florida, to California, or perhaps to some near-by city. Thus she has the fullest enjoyment of her garden throughout the season of bloom, and it is peculiarly desirable she should find satisfaction in this lovely feature of her home.

Hope and Despair

Most of us have experienced a mingling of hope and despair, joy and disappointment, during the past few months. We have wondered why some things that gave such fair promise resulted in naught. We have hung fondly over the bursting buds of peonies to find blackness at the heart and at sunset we have vauntingly measured the great seven-foot tall stalk of budded hollyhock only to view it next morning hanging forlorn and wilted.

If we are courageous enough, we have rooted out the offending stalks and cast them into the fiery furnace, this being the drastic treatment demanded by hollyhock wilt. "Burn the affected plant in order to prevent the spread of the disease."

But in spite of blighted buds and blighted hopes, flower gardening remains one of the most rewarding pursuits of the housewife who lives in the country. Second marriage has been cynically termed "the triumph of hope over experience." The same might be said of amateur gardening, and for much the same reason. The sweet so far exceeds the bitter that we are ready, nay eager, to risk it once more.

Keep the Plants Well

A very encouraging thing is that a garden of flowers, like a family of children, is easier kept in health than cured of illness. Experts tell us that flowers which are well-watered, well-fed, and well-tilled, so that they may breathe through the soil, are not subject to disease or insect attack.

But as with tender human flowers which, in spite of our best endeavors, will at times develop measles, mumps or whooping cough, so the tender garden flowers will be ravaged by disease, fungus, parasites, etc. There's no hesitation about sending for the doctor in the first instance, but what shall we do in the second emergency?

Send for the doctor, of course. Write to the United States Department of Agriculture or to your state experiment station, or to both, and they will send you a prompt reply with instructions as to the best spray or other treatment to be applied in your particular case and under your own climatic conditions.

A Word from the Wise

Sometimes the wise word of an experienced neighbor will prove invaluable. So I have found it. In Virginia, where my orchard home is located, mildew is the curse of the rambler roses. How charming is sweet pink Dorothy Perkins wreathing over the porch! How disfiguring are the defoliated stems and the blasted bunches that carry over a season, when the masses of buds have been mildewed just as they were bursting into bloom.

I was ready in discouragement to root up some splendid vines when my orchard neighbor, Purcell McCue, gave me the benefit of his discovery. Spray the bushes while dormant with the dormant spray for apples at the time that is being applied. This has the secondary advantage of being so easily done then, an advantage not to be overlooked in rushing days of work in the orchard.

A Happy Experiment

The advice came rather late, as my ramblers were already in full bud. Then, one sad day, mildew appeared and spread rapidly. It always seems to run like wild fire. Once more it looked as if I were to lose all that lavish display of beauty. Then the familiar chug-chug of the spray engine struck my ear. Why not, since the bloom was doomed any way, make a desperate experiment?

I called the sprayers to my aid and in a few minutes my wide-flung rose vines were dripping. Soon afterwards, the finest and rosiest abundance of flowers rewarded me. Having tried the spray only once at budding time, I cannot answer for its invariable success when the season is so far advanced, but control seems fairly assured if done at the proper season with the dormant spray of lime-sulphur.

Outside of a volume, detailed remedies and treatment cannot be entered into. I have given the example of the ramblers because they are such well-merited favorites for farm homes, and indeed for city homes as well, and on all sides I hear mournful talk concerning mildew. Make a mental note of this treatment, along with other things worth remembering.

Things to Remember

Remember what this summer has taught you. Probably one of its lessons has been that it is foolish to plant in the overflowing energy of early spring, more than the languor of warmer days will permit us to properly care for. More charm and real beauty can be packed into a small perfected area than will be the fate of larger, semi-neglected plantings.

Remember that each season has its activities and keep yourself posted as to what to do next. Delightful flower books are written for the guidance of the amateur. A most interesting and informing book is "The Complete Garden," by Albert D. Taylor. Smaller and very practical books and pamphlets can be had.

Remember that experience is the best teacher and try to profit by the experience of those about you. A garden club is a joy to any community, and all may profit by the experience of each member. Organize and put some life into the thing and you will never regret it. The garden status of the entire community will be raised and your pleasure in your own garden, by being shared, will be doubled.

Remember, most important of all, that flowers are living things. They are tender and growing things. You would not deprive a child of food or drink or of proper attention. You would not let him stifle for lack of air, or starve for lack of food, or wither for lack of water. You would not bind his growing feet in tight shoes, and you should not cramp the spreading roots in hard, tight soil.

Flowers have been poetically likened to the smile of God. All of us must, in the course of life, feel the rod of our Creator, why not take the opportunity to revel in His smile?

BELLE CITY MANUFACTURING CO.
TRACKPULL
RACINE, WIS. U.S.A.

TRACKPULL'S
Automatic Spring Release
Protects the Tread

The Automatic Spring Release in addition to the Trackpull's other exclusive features, assures the owner of the Trackpull-equipped Fordson a degree of dependable and efficient performance that is not to be had with any other crawler attachment for the Fordson.

The Automatic Spring Release amply protects against track breakage and undue strain of all working parts. It eliminates the possibility of damage to the track caused by rocks or other impediments from lodging between the track and the sprockets. This feature, plus Trackpull's square turning ability and 1000 square inches of ground contact makes the Trackpull-Equipped Fordson ideal for orchard work.

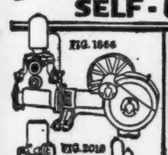
Belle City Mfg. Co.
Racine, Dept. F-7. Wisconsin

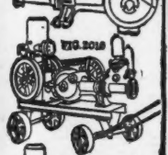
Note the rock between tread and sprocket. This is what causes track breakage. The Automatic Spring Release prevents this.

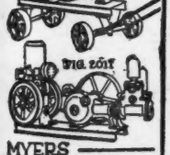
These four strong coil springs give and take up the strain imposed on the track.

On the Ocean Front Capacity 1000
The Breakers
ATLANTIC CITY, N. J.
American and European Plans. Sea Water in All Baths
Orchestra Dancing
Afternoon Teas Golf Privileges
Therapeutic Baths Fire-proof Garage
JOEL HILLMAN, President

MYERS
SELF-OILING







MYERS
ANTI-FREEZING SET LENGTH AND FIG. 1972
DEEP WELL WORKING HEADS

BULLDOZER
POWER
PUMPS

THERE are two good reasons why you should choose your Power Pump from the Myers line. (1) You'll get a pump that's built right; (2) You'll have a pump that will give you *all the water you need!*

Myers Bulldozer Power Pumps are thoroughly modern. They are self-oiling, quiet, safe, simple and dependable—absolutely the best-built, most satisfactory power pumps made. *And Myers Pumps are moderately priced.* We make a complete line of self-oiling Bulldozer Power Pumps—for deep and shallow wells—with capacities from 400 to 9,000 gallons per hour. See your Myers dealer—or write for catalog.

(31)

THE F. E. MYERS & BRO. CO.
154 Church St., Ashland, Ohio
Pumps, Water Systems, Hay Tools, Door Hangers

The Evaporated Fruit Industry

(*Continued from page* 17)

better utilized. The tunnel evaporator is a good general purpose drier, some individual plants handling berries, prunes, peaches, apples, sweet corn, and pumpkin in the course of each season. The fact that materials are spread in thin layers and left undisturbed till dry makes it especially suited to the drying of raspberries and loganberries, which become very soft and are prone to mat together in drying. The cost of evaporating apples in the tunnel is higher than in the kiln by reason of the labor required in spreading the fruit on the trays. The investment in a plant of given capacity is also higher than for the kiln method, and the depreciation of trays is rapid.

Natural-Draft Versus Forced-Draft Evaporators

All the driers described are "natural-draft" evaporators; that is, the bouyancy of heated air is depended upon to maintain a current of air through the apparatus. The tunnel is much more efficient in this respect than the others. A recent modification of the tunnel consists in the introduction of a blast fan for driving the warm air through the tunnel, with a return duct from the ventilator which brings back a portion of the moist air to be reheated and again passed through the drier. The advantages obtained are that quite constant temperature and humidity of the air can be maintained regardless of outdoor conditions, that drying capacity is increased, that fuel consumption is reduced, and that the tunnel can be made of greater length than with natural draft. A disadvantage is that the difference in temperature between the two ends characteristic of the natural draft tunnel is markedly cut down under forced draft. It is therefore necessary to use lower and carefully controlled temperatures, especially with berries and prunes.

Heavy losses of raisins and prunes due to rainy weather in the drying season occasionally occur in California, and two experiences of this sort within a few years have led to much interest on the part of growers in drying equipment as insurance against further loss from this source. Experimental work by University of California investigators has developed a large capacity drier which can be operated at a cost no greater than that of sun-drying where electric power and fuel oil are obtainable at low rates. In its essential features it consists of a long chamber of wood or sheet iron construction, in which wheeled trucks bearing stacks of trays stand closely side by side. A powerful fan draws air through a bank of steam pipes at one end and drives it longitudinally through the chamber. The arrangement of the trays is such that the air is forced to stream over them much as in the tunnel evaporator.

Accessory Machinery

Much attention has been given by manufacturers to the perfecting of equipment for preparing the fruit. Much of this equipment is identical with that used by canners. The primary considerations in such machines are durability, simplicity, and large capacity, and constant effort in these directions have brought about a high degree of efficiency in fruit handling equipment.

Choice of Fruit for Drying

In the choice of varieties of apples for drying, operators pay more regard to the color the dried product will have than to the dessert or culinary quality of the fruit, as the market demands a white or almost white product. The Baldwin is chiefly employed in western New York, the Ben Davis in Arkansas, the Yellow Bellflower and Yellow Newtown in California, and the York Imperial in Virginia. In the Pacific Northwest, the leading commercial varieties are employed in amounts varying with their relative importance in the various districts.

Reference to the statistics on production and value in Tables 1 and 2 shows at once that insofar as evaporated apple production is concerned there was a gradual increase in total production and in value for some years prior to the World War, a large increase during that period, and a decided decrease since. While authoritative figures for years subsequent to 1921 are not available, it is clear that production has remained at or below the figures given for that year. The reason is economic. Approximately one-half of our total production was formerly sold abroad, mainly to Germany, with Russia and the Scandinavian countries taking smaller amounts. Since the war, the

(*Concluded on page* 23)

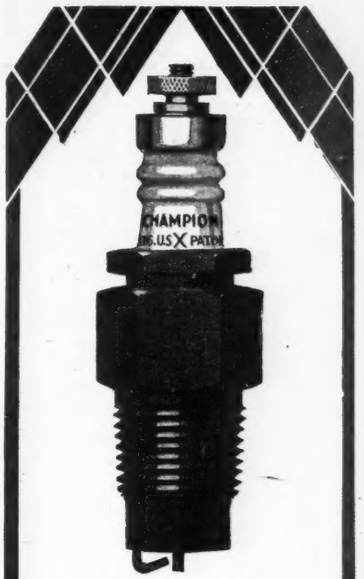
TABLE 1.—EXTENT AND DISTRIBUTION OF THE DRYING INDUSTRY, 1899–1921.

(Production, pounds.)

	1899.	1909.	1919.	1921.
Apples.				
Arkansas	1,402,000	1,571,945	6,720,070	.....
California	3,087,220	6,860,170	15,477,039	15,075,644
Illinois	1,424,149	201,200	274,354	.....
Indiana	101,000	.....	.....	.....
Iowa	26,100	.....	.....	.....
Kentucky	20,000	.....	.....	.....
Michigan	4,418,453	1,982,611	.....	.....
Missouri	116,900	.....	.....	.....
Nebraska	6,600	.....	.....	.....
New Hampshire	53,750	.....	.....	.....
New York	21,542,897	33,652,115	13,521,019	3,069,925
Ohio	269,500	.....	.....	.....
Oregon	37,250	.....	1,577,441	1,378,244
Pennsylvania	570,490	295,750	.....	.....
Tennessee	13,000	.....	.....	.....
Virginia	53,000	.....	1,274,125	.....
Washington	.....	.....	4,044,090	1,924,742
West Virginia	.....	.....	203,000	.....
All other states	.....	5,553	3,529,461	.....
Totals	33,213,209	44,568,244	46,623,599	22,975,189
Apricots.				
California	5,310,217	29,205,569	23,944,612	21,812,008
Illinois	155,000	.....	.....	.....
All other states	.....	.....	248,016	.....
Totals	5,465,217	29,205,569	24,192,628	21,812,008
Prunes.				
California	24,102,329	118,917,876	114,324,446	107,138,122
Oregon	360,100	14,009,597	19,930,935	14,039,179
Washington	286,000	5,445,017	.....	.....
All other states	665,334	126,000	2,121,685	3,264,375
Totals	25,413,763	138,498,490	136,377,066	124,441,676
Peaches.				
California	5,502,390	46,827,391	73,268,010	35,406,706
Illinois	160,000	.....	.....	.....
All other states	.....	16,000	111,183	.....
Totals	5,662,390	46,843,391	73,379,193	35,406,706
Raisins.				
California only	10,734,221	111,774,767	293,300,581	275,282,354

TABLE 2.—VALUE OF PRINCIPAL DRIED PRODUCTS, 1899–1921.

	1899.	1904.	1909.	1914.	1919.	1921.
Apples	$1,906,642	$1,758,610	$3,098,095	$2,889,406	$ 6,772,100	$ 2,799,891
Apricots	455,394	1,410,836	2,277,177	3,615,857	6,034,697	3,385,044
Peaches	312,495	1,702,205	2,423,083	2,915,595	12,109,624	4,165,932
Prunes	970,927	3,299,628	5,130,412	9,004,348	18,253,691	10,097,515
Raisins	1,062,268	6,349,381	6,912,533	13,938,645	35,544,262	47,561,535
All other	49,279	1,144,122	2,073,695	2,408,061	6,686,911	3,162,891



Champion X

Standard on Ford for 13 Years 60c EACH

Like all Champion Spark Plugs, Champion X is better and will give satisfactory service for a longer period because of its double-ribbed sillimanite core unbreakable in use; its semi-petticoat tip which retards carbon formation; its special alloy electrodes; and its two-piece, gas-tight construction.

But even Champion should be replaced every 10,000 miles to make certain continued better engine service. They soon save their cost which is but 60 cents each.

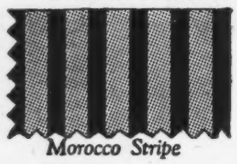
Champion Spark Plug Co.
Toledo, Ohio
Windsor, Ont. London, Paris

Champion Blue Box types for all other cars cost but 75c. All genuine Champions have double-ribbed cores of sillimanite.

CHAMPION

Men! here it is

A Fine Cloth for a Gentleman's Work Garment


Morocco Stripe

Express Stripe

YOU can be proud of a garment made of Stifel's Work Cloth. It is the most refined work cloth on the market today. It comes in two neat and attractive designs, both new and up-to-date.

The Morocco Stripe is a two-tone cloth which has a rich blue effect.

The Express Stripe has a rich, white background with either blue or black stripes.

Garments made of Stifel's Work Cloth not only wear longer than ordinary work cloth materials, but the colors are fast and they can be washed at home indefinitely, which is a big economy to you.

To make sure you get garments made of Stifel's Work Cloth, look for the Boot-shaped Trade Mark on the back of the cloth. The Standard for over seventy-five years. It's your protection and guarantee.

REG. U.S. PAT. OFF. STIFEL'S

Garments sold by reliable merchants everywhere

Write for samples—We are makers of the cloth only

J. L. STIFEL & SONS, Wheeling, W. Va.

Indigo Dyers and Printers

Distinctive Stationery

125 sheets Hammermill Bond Letter Heads and 100 envelopes $1.00, any color of ink or paper desired; 500 Hammermill letter heads two color printing if requested or 500 envelopes, $2.25. Cuts used, no extra charge, postage paid.

Personality Stationery

200 sheet heavy bond personal correspondence paper and 100 bond envelopes printed with your name, address and business card for $1.00. 50 lbs. invitation with two envelopes to each invitation best wedding stock $3.50, 100 high grade panel visiting cards $1.00 we pay all postage, catering to the most particular people we will cheerfully refund money if you are not entirely satisfied. Send us your orders. Address

Taylor Printing Company, Joplin, Mo.

THE BARKER "IDEAL" FRUIT PACKING BAG

Makes fruit picking far easier. No bruising. A time saver

$1.75 POSTPAID

The Barker "Ideal" will more than pay for itself in one season. Made of heavy canvas duck. Load easily carried, and emptied without removing from shoulder. Practical, durable and a real money saver.

At leading hardware dealers or sent postpaid $1.75. Send for circulars.

BARKER MFG. CO.
107 South Ave. Rochester, N. Y.

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The American Fruit Grower Magazine, with more than 225,000 circulation, reaches leading Fruit Growers and Horticulturists in every part of the country each month. Their wants are almost unlimited, and they study the advertising columns of The American Fruit Grower Magazine to learn what is being offered for sale there.

Nearly every reader of this publication has something to sell which other fruit growers need. Here is the place to make that fact known. Many subscribers are already making profitable use of this department. List what you have for sale or need and find a ready market.

Classified advertisements in The American Fruit Grower Magazine, using no illustrations or display type, cost 15 cents a word each insertion, no advertisement of less than ten (10) words accepted, making the minimum charge $1.50. Cash must accompany order, copy must reach us by the 10th of the month for following month's issue. Address

Advertising Department

American Fruit Grower Magazine, Monadnock Bldg., Chicago

CHATS WITH FRUIT GROWER'S WIFE

By HAZEL BURSELL

Good Fruit Room Needed

EVERY farm woman should have a suitable place for the storage of the canned fruit, vegetables, meats, preserves and jellies she has put up for the winter months. The storage room or building should be well ventilated, dry, and protected from extreme heat and cold. It should provide ample storage space on substantial shelves for the various sizes of jars and crocks.

The housewife will never know the full joy of canning until she can go to her fruit room and look at the results of her handiwork—the orderly rows of canned peaches, berries, beans, peas, cherries, prunes, corn, and tomatoes, each looking all the more tempting because of its shining case of glass. To the women who have well-filled, A-1 fruit rooms, there is nothing about the home that is a source of greater pride.

Fruit Room in Basement

Ye editor feels that way herself. The first thing she ordered installed in her new home was a fruit room in the northwest corner of the basement. It is built with double walls with building paper between. It has a door in one end with a good latch. It has a screened trap door, six inches by 10 inches, to the outside for ventilation. The trap door is closed during freezing weather. Shelves, well put up and strongly braced, line the walls on both sides. It is dangerous to use shelves which sway in the middle or slope to the outside when laden with the filled jars. The shelves towards the top may be closer together for pint jars, while those lower down will need to be further apart for the half-gallons. Leave from two to two and one-half feet of wall space at the bottom without shelves for heavy crocks, etc. A jelly cabinet is convenient.

If a separate building is used, the walls should be double and filled with sawdust or other insulating material to insure coolness in the summer and reasonable warmth in the winter. No leaky roofs and cracked walls should be tolerated. Light is very detrimental both to the color and keeping qualities of canned products. If the room or building is light proof except when the door is open, the housewife will have no need of wrapping the jars of fruit or vegetables, or putting them in boxes. She can set them in groups on the shelves and enjoy looking at the array every time she comes for a jar.

Did you ever rush to the fruit house for a particular fruit or vegetable and have to hunt through various boxes to find it? If you have, you will appreciate the advantage of having them well arranged on shelves. I still believe in labeling certain products when canned—it saves much time and also ruffled tempers caused by opening the wrong fruit. Berries, plums, the various kinds of jams and jellies, should all be labeled. They all look very much alike once they are in jars or glasses.

The fruit room should be mouse, insect and squirrel proof. All well-constructed buildings are mouse-proof nowadays, so this should not be too large an order. It would perhaps be well not to put things in the fruit room which will attract rodents.

No Window Wanted

There should be no window in the fruit room. A door and the little trap door for ventilation are all the openings needed. It may be necessary to provide some type of light in a larger room. Setting the darker types of canned products nearer the door will help. Where the farm is equipped with electric lights the fruit room should have a light outlet also. There should be a switch near the door so no one need search about the center of the room for the light globe when coming in, and then have to stumble out on leaving.

Men folks should realize that they will be well repaid for the time and money spent in providing a proper fruit storage room. Their wives will be better satisfied with things generally. Furthermore, they will perfect their canning methods with resulting better products when they can see the results of their handiwork.

A Bleach for Freckles

VERY bad cases of sunburn, tan and freckles will not yield to ordinary mild treatments, such as lemon creams and lemon juice. For these there is a cucumber lotion which gives good results in about two weeks. Of course, the sunburn will have to be healed before the "bleaching" process is started so that it will not be painful.

The cucumber lotion is made in the following way: Peel and cut three large cucumbers. Stew them in a large colander. Strain the juice and add to it three tablespoonfuls of toilet alcohol. Ten drops of tincture of benzoin should also be added. Let the mixture stand for four or five hours, or overnight. Add one tablespoonful each of olive oil, milk of almonds and rose water. If the lotion seems to thick, add more water to thin it to the desired consistency.

Mild Bleach Best

Do not expect immediate results, but use the cream given above every day for at least two weeks before looking for definite improvement. A preparation that will bleach the skin quickly is apt to be too drastic in its action on the tissues. Some skins will stand much rougher treatment than others.

A simpler bleach, and one that gives satisfactory results, is to wash the face, arms, neck and hands in water to which a few drops of tincture of benzoin have been added—just enough to make the water milky. Benzoin gives results rather quickly and will leave the skin soft, smooth and white. Lemon juice is a quick bleach, but for persons with a dry skin the pure juice should be diluted or irritations may develop.

A bleach which should be convenient to apply for any farm woman is buttermilk or whey from cheese. Ye editor used to adopt that method of getting to look less like "a little Indian" about three days before the Fourth of July when she was a farm lassie. Smear the arms, face and neck with the buttermilk or whey and then coat with dry cornstarch. When the cornstarch dries, wet it again with whey. Keep up the process, until the skin has been brought back to its right color.

Making Prune Bread

THE BOYS' and Girls' Clubs of Oregon and Washington have been doing their bit towards popularizing a worthy western agricultural product, namely, prunes, by carrying the message of their food value to the middle western and central states. The Oregon clubs felt the need of helping the prune growers of the West and

took the lead in a crusade to call attention to the delicious things which can be made from prunes. They developed a recipe for prune bread, which gives an extraordinarily good product. Then they trained baking teams to give demonstrations. The best team was selected and sent to Chicago in the fall of 1924 to tell about and demonstrate the making of prune bread and let residents of the Windy City sample their product. They were accorded a fine reception on their trip.

Ye Editor thought that readers of the "Chats" department would like to try the recipe used by the club baking teams in their demonstrations. She feels that once having tried it, prune bread will be as popular with the family as its favorite cake. Here's the recipe!

Prune Bread

1 qt. liquid (milk or water).
1 or 2 cakes compressed yeast.
About 3 qts. sifted bread flour.
4 T. melted shortening.
4 t. salt.
4 T. sugar.
1 pound prunes.

Wash the prunes carefully and soak overnight in enough cold water to cover. Pit and cut up somewhat.

Scald the milk. Pour it into the mixing bowl, reserving two-thirds cup in which to soak the yeast. The quick-acting type of yeast is used so that the whole process takes no more than four hours.

Add the sugar, salt, and melted fat to the milk in the bowl. When lukewarm (80 degrees Fahrenheit) add about half the flour.

When the milk in the cup is lukewarm, break in the yeast and add one teaspoonful sugar. Add the yeast to the batter after bubbles form on the top. Beat well; add enough flour so that the dough may be put out on the board and kneaded.

Knead for about 20 minutes, adding the prunes and more flour from time to time. The dough should feel springy and be free from stickiness when it has been kneaded enough. Put the dough in the greased mixing bowl with a clean cloth and set where it will keep warm.

When the dough has doubled in bulk, knead it down and let rise a second time until double in bulk. Form into loaves, let rise until nearly double in bulk, and bake from 45 to 60 minutes, depending on the size of the loaf.

Tempting Peach Desserts

NOTHING can beat a real sun-ripened peach for flavor. Most of us like 'em so well we enjoy 'em plain or with cream and sugar throughout the all-too-short season. But they are also delicious "dolled up" a bit. The family will like the desserts using peaches given in these columns. Peaches may be canned to be used later in the winter in puddings, sauces, pies, dumplings and salads. Peach preserves and spiced, pickled peaches are delicious. The small, harder and greener ones may be peeled and pickled whole with even better results than the riper ones would give.

Junket Ice Cream with Peaches

4 c. lukewarm milk	1 T. cold water
1 c. heavy cream	1 T. vanilla
1¼ c. sugar	1 t. almond extract
⅛ t. salt	Green coloring
1½ Junket tablets	1 can peaches

Mix first four ingredients and add junket tablets dissolved in cold water. Turn into a pudding dish and let stand until set. Add flavoring and coloring. (Coloring may be omitted, if desired.) Freeze, mould and serve garnished with halves of peaches, filling cavities with halves of blanched almonds. Turn peaches into a saucepan, add ½ c. sugar, and cook slowly until syrup is thick. Cool before garnishing ice cream. If fresh peaches are at hand, peel 4 large peaches, place halves in saucepan, add 1½ c. water and 2 c. or more of sugar. Cook slowly till syrup is thick and cool as before.

Peach Cabinet Pudding

1 can peaches	½ c. sugar
½ c. powdered sugar	¼ t. salt
1 c. milk	1½ T. gelatine
Yolks 3 eggs	2 T. cold water
Whites 3 eggs	

Drain peaches, cut in quarters, and sprinkle with powdered sugar. If fresh peaches are used, make a sauce and save the syrup. Make a custard of milk, egg yolks, sugar and salt, and just before removing from fire add gelatine soaked in cold water. Strain and when slightly cooled add peach syrup. Stir until mixture begins to thicken, and add whites of eggs beaten stiff. Line a mould with peaches, pour in the custard and chill. Unmould and serve.

Baked Peaches

Peel, cut in halves, and remove stones from 6 peaches. Place in a shallow granite pan. Fill each cavity with 1 t. sugar, ½ t. butter, few drops lemon juice and a slight grating of nutmeg. Cook 20 minutes in a medium oven. Serve on circular pieces of buttered dry toast.

Peach Conserve

1 lb. dried skinned peaches	Juice 1 lemon
	Juice 1 orange
1 qt. cold water	¼ whole orange
1 c. raisins	1 lb. sugar
½ lb. walnut meats	

Add cold water to peaches, cover and let stand over night. In the morning add raisins, seeded and cut in pieces, chopped nut meats, fruit juices, orange cut in thin slices (remove orange seeds), and sugar. Bring to boiling point and let simmer 1¼ hours, stirring occasionally to prevent burning.

Sweet Pickled Peaches

½ pk. peaches	1 pt. vinegar
2 lbs. brown sugar	1 oz. stick cinnamon
Cloves	

Boil sugar, vinegar and cinnamon 20 minutes. Dip peaches quickly in hot water, then rub off the fur with a towel. Stick each peach with four cloves. Put into syrup, cook until tender, cooking half the peaches at a time.

Peach Pie

Remove skins from peaches by dipping for a minute in boiling water and rubbing. Cut in eighths, cook until soft in just enough water to prevent burning; sweeten to taste. Cool and fill crust previously baked. Cover with whipped cream, sweetened and flavored.

Peach Custard

Arrange alternate layers of stale cake and sections of canned or fresh sweetened peaches in glass dish and pour over Boiled Custard.

Boiled Custard:

2 c. scalded milk	⅛ t. salt
Yolks 2 eggs	¼ c. sugar
½ t. vanilla	

Beat eggs slightly, using a fork, add sugar and salt; stir constantly while adding gradually the hot milk. Cook in double boiler. Continue to stir until mixture thickens and a coating is formed on the spoon; strain immediately, chill and flavor. If cooked too long the custard will curdle; should this happen, by using an egg-beater it may be restored to a smooth consistency, but custard will not be as thick. Do not beat eggs too much at first. To prevent scum forming, cover with a perforated tin.

Peach Tapioca

1 c. peaches	Boiling water
¼ c. powdered sugar	½ c. sugar
1 c. pearl tapioca	½ t. salt

Drain peaches, sprinkle with powdered sugar and let stand 1 hour. Soak tapioca 1 hour in cold water to cover. To peach syrup add enough boiling water to make 3 c. and heat to boiling point. Add tapioca drained from cold water, then sugar and salt; then cook in a double boiler until transparent. Line a mould or pudding dish with peaches cut in quarters, fill with tapioca and bake in a moderate oven 30 minutes. Cool slightly, turn on a dish and serve with Cream Sauce.

Cream Sauce:

¾ c. thick cream	½ t. vanilla
½ c. powdered sugar	

Beat cream slightly and add sugar gradually while beating constantly with egg beater. Add vanilla and few grains salt when stiff enough to hold its shape.

Peach Canapes

6 peaches	Rind of 1 lemon, grated
¾ c. sugar	
1½ c. water	6 slices of bread
3 T. cornstarch	toasted

Cook peaches, sugar, water and grated lemon rind together until peaches are tender. Arrange peaches on toast and thicken the juice with the cornstarch. Pour over the peaches and serve cold as a dessert, with or without cream.

Peach Compote, Peach Sauce

2 c. milk	Whites 2 eggs
½ c. farina	6 peaches
¾ c. sugar	3 T. water
½ t. salt	6 T. sugar

Scald milk and add farina gradually, while stirring constantly. When mixture thickens add sugar and salt and cook in double boiler 20 minutes; then add whites of eggs, beaten stiff. Turn into slightly buttered shallow pan and keep in warm place until serving time. Remove skin from the peaches, put in saucepan and add water and sugar. Cover and cook slowly until fruit is soft. Cut farina in squares, put a peach on each square, and pour over all the Peach Sauce.

Peach Sauce: Dilute ½ T. cornstarch with 1 T. cold water. Add to syrup remaining in saucepan, bring to boiling point, and let boil 2 minutes. Then pour slowly, while stirring constantly, over the yolks of two eggs, beaten until thick and lemon-colored. Add 2 t. lemon juice and a few grains salt.

Table of Abbreviations

1 c. equals 1 cupful.
1 t. equals 1 teaspoonful.
1 T. equals 1 tablespoonful.
1 pt. equals 1 pint (2 standard cups).
1 qt. equals 1 quart (2 pints).
1 lb. equals 1 pound.
1 pk. equals 1 peck.

All Measures Are Level.

The Successful Roadside Market

(*Continued from page 8*)

ductive farming enterprise of sufficient volume, has great promise both as an economical method of marketing and as a method of getting products to the consumer in good condition at satisfactory prices."

And then I began to learn something about roadside marketing.

The chief obstacle to successful wayside marketing, it seems, lies in the fact that few farms are so happily situated as to provide the necessary combination of essentials. Briefly they are: (1) location on a heavily and constantly travelled road—not just a state road; (2) plenty of produce to sell and in succession; (3) plenty of room on both sides of the right-of-way for cars to stop; (4) plenty of efficient help; (5) a sizable outlay of buildings in the way of rest rooms, tables, benches, water, and other things that the travelling public is looking for; and (6) attractiveness in every detail, from the landscaping of the grounds to the packages in which the fruit is delivered, and not omitting abundant lighting at night.

Plenty of Room Necessary

In Mr. Hotaling's case, "plenty of room" has meant gravelled drives on either side of the road, accommodating altogether five lines of cars some 200 feet in length. And since he is a lover of flowers and ornamentals, he has spent a great deal of time and

Such an assortment of products should satisfy anyone

money in making his grounds beautiful. People stop to see the flowers—and then buy.

As for help, the idea of a boy or girl tending a place of this kind is ridiculous. With 30 cars calling for attention at once, how far would a boy or a girl go? Moreover, Sundays and holidays quickly disappear, and the operators have no time that they can call their own until 10 o'clock ends the day's activities.

Prices should be dictated by business principles and business methods—not by conscience. A great many wayside markets owe their downfall to the policy of get-what-you-can, you-won't-see-them-again. The permanent roadside market on the other hand, with its fair-sized investment and extra help, cannot afford to offer produce in retail quantity at wholesale prices, yet a business will not endure if it is really not worth while to the buying public. People cannot be expected to deal at a place unless it is good business to do so. It cannot be considered a good place to trade unless people from the surrounding villages and cities find it so.

Service is the Keynote

"Service" is the keynote of the entire proposition and every effort must be made to provide a customer with that which he wants. There are few farms that offer the variety and endless succession of stuff that Mr. Hotaling's does. But even then he is forced to buy corn, tomatoes, cucumbers, peppers, honey, and cider from his neighbors in order to satisfy the trade.

Staples have been added, such as gasoline, oils, cigars, candy, frankfurters, coffee, and soft drinks, "until," said Mr. Hotaling, "it looks more like a wayside store than the accepted idea of a wayside market, and I know not myself what the outcome will be."

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Lightning Rods Do Protect

EVERY year there is an enormous loss of property on farms due to fires caused by lightning. Much credit is due the lightning rod man who has protected farm buildings with carefully installed lightning rods. Statistics indicate that the losses on rodded buildings are very slight when compared with the losses on unrodded buildings.

That the effectiveness of the lightning rod is practically 100 per cent as a protective device is indicated by the reports of insurance companies that insure both rodded and unrodded buildings. A Michigan company insuring only buildings that are rodded reported that their losses for four years, with a total of over $50,000,000 worth of buildings insured, amounted to only $32.

Another company insuring both rodded and unrodded buildings and having about the same value in buildings insured paid out over $30,000 for damage to unrodded buildings by fires started by lightning. The proportion of loss on rodded buildings to unrodded buildings was $1 to $1167 in the experience of this company.

A mutual fire insurance company in Illinois reports that 55 per cent of the losses in 1924 were due to lightning, and all of the buildings struck by lightning were unprotected by rods.

How the Rods Work

The function of the lightning rod is to allow the static electric charge in the earth to pass off into the atmosphere and thereby neutralize the attraction between the charge in the earth and the charge in the cloud above the earth, thus preventing a discharge, or the lightning, from striking.

The essential parts of a lightning rod system are the ground connection, the points on the roof, and the conductor between the ground and the points. There are many different makes and types of rods, but the principle of operation is the same for all of them.

Selecting the Rods

The following are the principal factors which enter into the choice of lightning rod equipment: Value of buildings, value of contents of buildings, protection of life, and funds available for rodding. The fact is that lightning rods represent a type of insurance and the investment should be considered accordingly.

The efficiency and durability of a lightning rod system will depend on the workmanship and materials used in construction. Copper installation is the best, but it also costs the most. Ornaments such as glass balls, wind vanes, etc., improve the appearance in some cases, but do not add to the protection. Cheaper and less efficient installations may be made by using iron conductors. A metal roof is considered good protection if the four corners are grounded and if the points are provided at the high points on the roof. A round metal ridge is not effective in allowing a charge to pass off readily into the atmosphere; a saw tooth effect would be better.

Kind of Rods

As to kinds of rods to use, it will be found that lightning rods are made of copper, aluminum, galvanized iron, and combinations of these. Due to its durability and high conductivity, copper is much more desirable than other materials. A combination of two or more metals is not as desirable as rods made of one material. Copper should be at least three ounces in weight per foot, aluminum two and one-fourth ounces per foot, and galvanized iron four and one-half ounces per foot. As to the construction of the rod, the best form is the type that gives the most exposed surface. It has been found that from the standpoint of strength and exposed surface available, the twisted cable and woven types of rods are much more desirable than other types.

Ground the Rods

One of the principal points to keep in mind in the installation of a lightning rod is to have it thoroughly grounded; that is, the lower end of the rod should be attached to a piece of pipe or other material by soldering and the pipe driven into the ground to a depth that will always be in contact with moist soil. This depth will depend upon local conditions to a certain extent; usually it is desirable to drive the pipe in to a depth of six or eight feet. Some companies make a special feature of the grounding equipment furnished with their systems.

The fact that lightning rods are such an effective means of protecting houses against lightning should enable insurance companies to give a special rate on buildings that have been rodded. Many mutual companies allow a reduction in their rates varying in amount from 25 to 36 per cent.

Selecting the Engine for the Job

MANY times a gas engine is selected that is not suited for the job for which it is used. The following is an example of this: A farmer reports that he has been trying to run a cream separator with a one and one-half horsepower gas engine, but he is not getting good results, due to the jerk and vibration of the engine. Some cream separators seem to give better results than others when driven by a gas engine, but in every case an engine should be secured that has been thoroughly tried out for the job and one that is recommended by the separator manufacturer. For such a use only an engine with a uniform speed would be satisfactory.

Another use where an engine with uniform speed is needed is in driving an electric generator. A slow speed, hit and miss type of engine would not be at all satisfactory for such a use. The throttle-governed engine is the type that is used when a close speed regulation is desired.

The gas engine does not have the same capacity for overload as either the electric motor or the steam engine and for this reason it is always desirable to select a gas engine with a little larger rating than an electric motor for the same job.

THE UNIVERSITY of Missouri has accepted from 30 former students of the College of Agriculture, who studied under the late Dr. J. C. Whitten, an oil painting of the noted teacher and investigator. The gift was presented to the university by Prof. T. J. Talbert, Head of the Department of Horticulture. It will rest over a door and archway designed by Prof. H. F. Major, also of the Department of Horticulture.

The Evaporated Fruit Industry

(*Continued from page* 19)

foreign market has taken only a small portion of its former requirements, and while there has been some increase in foreign demand during the past year it is still greatly reduced. Our domestic consumption has not markedly increased; hence lessened demand, in conjunction with higher labor cost, brought prices down very nearly to the cost of production. In the eastern states a succession of light apple crops has made it more profitable to market the fruit fresh than to dry it, and many eastern operators have closed their plants until such time as an assured margin of profit from operation can be seen. Consequently, the center of production has shifted during the past few years to the Pacific Coast, where fruit of the low grades has been abundant at low cost.

Present Status of the Industry

At the present time the evaporator industry is climbing up-hill after a period of lessened demand and low prices. The effect of the period of market depression has been to eliminate many operators who, by reason of poor facilities, high labor costs or other unfavorable factors, had a high production cost. There has been a decided improvement in manufacturing methods and in the quality of the product. There has been some increase in demand from abroad during the past eight or 10 months, and every step toward restoration of credits abroad will tend to improve foreign demand. There is also some increase in home consumption, and this should continue to expand. All this is encouraging. There is, however, a manufacturing capacity considerably in excess of the absorbing power of all existing markets. A heavy apple crop in all producing regions and the operation of existing plants at full capacity would overstock the market and drive prices down dangerously near the no-profit line, but such a contingency is not likely to occur. Consequently, while there is no room in the industry for sudden expansion, there is opportunity for gradual increase in the output of the better grades of product.

THE OHIO State Horticultural Society will hold two summer meetings, one for northern Ohio and one for southern Ohio. The southern Ohio meeting will be held at the Meigs county experiment orchard at Carpenter on August 7. The spraying experiments of Prof. F. H. Ballou, which have been in operation since 1922, will be inspected.

The northern Ohio meeting will be held in the northeast part of the state on August 13. The exact place will be announced later by the secretary. On August 14 a tour will be arranged to important vineyards and possibly one of the large nurseries.

Orchard day will be held August 21 at the experiment station at Wooster. Prof. J. H. Gourley has arranged an excellent program and will explain the experiments being conducted at the station.

THE THIRTIETH annual convention of the International Apple Shippers' Association will be held in Cleveland, Ohio, August 11-14. This is an organization for all associations and persons interested in the selling and shipping of apples. It includes in its membership dealers, growers and co-operative associations. The convention provides a meeting place for buyers and sellers of apples and offers an excellent opportunity to obtain trustworthy information on apple prospects.

APPLE orchards in western New York are reported to be comparatively free from scab this year. Leaf rollers did some damage during June in Wayne, Monroe and Orleans counties. Case borers have been more abundant than usual and the quince curculio has been troubling pears in some sections.

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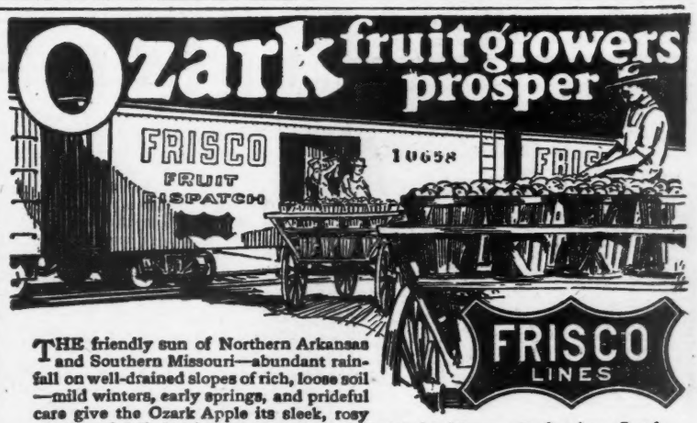

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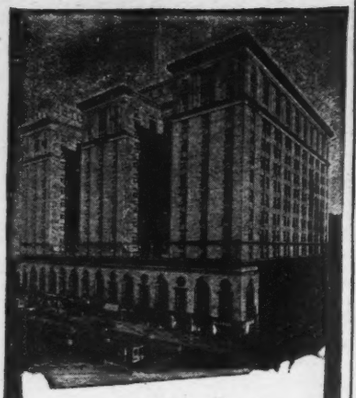

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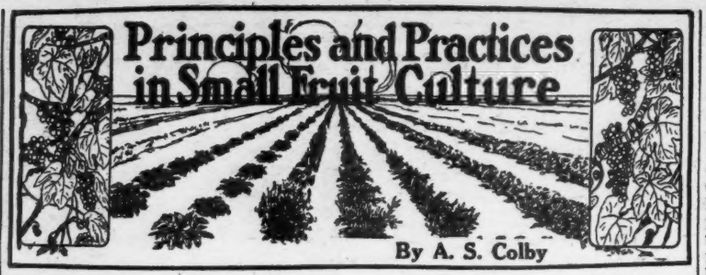

Storage of Grapes for Home Use

THE USEFULNESS of the grape as an article of daily diet has been widely recognized since the dawn of history. It is said that grape seeds have been found with the remains of European peoples of pre-historic times, showing that the wild grape was known and appreciated by primitive man.

European grapes (*Vitis vinifera*) were probably found growing wild near the Caspian Sea, and their cultivation was begun in that region. They were used mostly in the making of wines and dried for use as raisins. Only in a limited way was it found possible to preserve the fruit in a fresh state for eating out of hand for any considerable length of time.

At the present time the use of the fresh fruit is somewhat limited and various methods of preservation of at least a portion of the immense crops grown are necessary. There is a distinct place for the grape as a "fresh" fruit even more than is now recognized.

Common and Cold Storage

In the commercial field cold storage and common storage are being utilized to an increasing extent. The use of cold storage may result in relieving the glut on the market sometimes found in the fall and distribute the sales of fresh native grapes through a period of several months.

Cold storage, it is interesting to note, is not of recent introduction. Frank N. Meyer, agricultural explorer for the United States Department of Agriculture, reports that he has found cold storage methods applied to fruits in remote parts of China. He states that the Chinese have understood the practical application of cold storage methods for centuries. They understood that fruits could be conserved through a reduced storage temperature. It was found that the Chinese were "able to hold grapes from one year to the next by storing them in deep cellars which are kept cold with baskets of broken ice placed among the baskets of fruit."

The use of common storage is within easy reach of the grower of grapes for home use, and this method should be more generally practiced. It should be one's aim "to conserve the natural cold" in buildings constructed for this special purpose and equipped with correct openings for ventilation. Cool air is admitted when its temperature is low enough to cool the fruit to the desired degree. The ventilators are closed during the warm portion of the day. It is generally thought that a temperature of 32 degrees Fahrenheit is the most favorable for the storage of grapes, where it can be maintained. If the temperature of a common storage room can be kept somewhere near this figure early in the season, the critical period, the storage period can easily be extended for some months. If the grapes are ripened too rapidly by somewhat high temperatures during the early part of the season, it will be impossible to keep them their normal period even if the temperature is consistently low later on. It has been said that a "combination of cold and common storage is really the solution of many of the problems of successfully holding the fruit in the district where it is produced." Such a program can be readily carried out on many fruit farms. Where ice has been stored the previous winter, it can be used during the early part of the storage season to cool the grapes properly and quickly. As the cool fall nights come on, the building can be used as an ordinary common storage room.

Caves, pits and cellars have all been used as places for common storage. The chief essentials of a successful storage room are, as mentioned before, effective means of conserving cold such as provided through proper insulation, and adequate provision for ventilation. These are more satisfactorily provided in a building entirely above the ground.

Some Factors Underlying Successful Grape Storage

Besides the need for quick and thorough cooling of the grapes, considerable attention must be paid to the fruit itself from the time the bunches set until the fruit is harvested and brought to storage.

Such red varieties as Brighton, Salem, Agawam, Caco, Lindley and Vergennes are good keepers. The Barry and Herbert black varieties stand up well. White varieties, as a rule, keep poorly.

The best of care must be given the fruit which is to be placed in common storage. Attention must be paid to the correct methods of culture, including training, fertilizing, cultivating, spraying and harvesting. The grapes should be picked at just the right stage, if anything, a trifle under-ripe. Only the best bunches should be selected for storage. No diseased fruit should be stored. The fruit should be handled carefully to prevent bruising. Small climax baskets or shallow trays may be used as containers.

It has been recommended that the stem end of the bunches be dipped in paraffin to prevent unnecessary loss of moisture. It would be interesting to try this out in a thorough manner, leaving checks under the same conditions to see which kept in good condition the longer.

Common storage of grapes provides a means of extending their season several weeks and offering another source of fresh fruit of excellent quality for the farmer and small fruit grower.

Joint New York and Pennsylvania Meeting

A JOINT summer meeting will be held on July 29, 1925, at the New York State Agricultural Experiment Station, Geneva, N. Y., by the New York State Horticultural Society, the Pennsylvania State Horticultural Association and the New York State Vegetable Growers' Association.

During the day an opportunity will be given visitors to look over the extensive experiments being conducted at the station. The breeding tests and fruit variety tests will be particularly interesting.

Between 11 and 12 o'clock a brief speaking program will be presented. The speakers will include Dr. R. W. Thatcher, Director of the New York State Agricultural Experiment Station; R. L. Watts, Dean and Director of the Pennsylvania State College and Experiment Station; and Prof. S. W. Fletcher, Chief in Horticulture at the Pennsylvania State College.

Light lunches will be sold on the station grounds and places will be provided for those who bring their own lunch.

Summer Meeting in Michigan

ACCORDING to Secretary H. D. Hootman, the Michigan State Horticultural Society will hold its summer meeting on August 4, 5 and 6. The tour will start with an inspection of the Graham Experiment Station at Grand Rapids, where some important horticultural investigations are in progress. A visit will also be made to the J. P. Munson orchard, where a fire blight control school was held last winter and where many trees have been bridge grafted.

The second day will be spent near Fennville. The tour will start with a visit to the Fennville Fruit Exchange. A stop will next be made at the Frank Crane orchard, where a blight control school was held two years ago. The next stop will be at the Trevor Nichols orchard, where Mr. Cardinell has been conducting a spraying demonstration in which pressures have been used up to 800 pounds. A pruning project in this orchard will also be inspected. Dinner will be served at the Allegan County Park, and those who have swimming suits may take a dip in Lake Michigan.

Following the dinner, stops will be made at the air-cooled storage plant of Dr. Brunson, the pear orchard of Milo Vesper, the Ray St. John's peach orchards and the J. K. and F. M. Barden peach orchards. It is in the latter orchards that Prof. V. R. Gardner conducted his pollination studies with the J. H. Hale peach.

The third day will be spent at South Haven. The experiment station will first be inspected. Visits will also be made to the orchards of James Nicol and L. A. Spencer and to Corporation Orchard No. 1 and Corporation Orchard No. 3. The South Haven peach originated in the orchard of L. A. Spencer. An interesting object lesson in choosing an orchard site is in evidence in Corporation Orchard No. 3.

The Michigan meeting should prove a most excellent one and growers of Michigan as well as near-by states will find it to their advantage to attend.

MASSACHUSETTS has started the largest survey of northeastern orcharding ever attempted. An attempt will be made to reach all of the 24,000 orchardists in the state reporting over 100 trees. The object will be to determine the quantities of different kinds of fruits shipped to New England markets, to secure information about New England apples in comparison with those from other sections, and to study the possibilities of exporting New England apples.

The agricultural experiment station, agricultural college, the state department of agriculture and the United States Department of Agriculture are co-operating in this work. The project will be financed largely through the Purnell Act recently passed by Congress. The committee in charge will consist of Jesse W. Tapp and A. E. Cance and a representative from each New England state. Among other things the survey will include information about varieties. It is expected that the survey will serve as a planting guide for the next 20 years.

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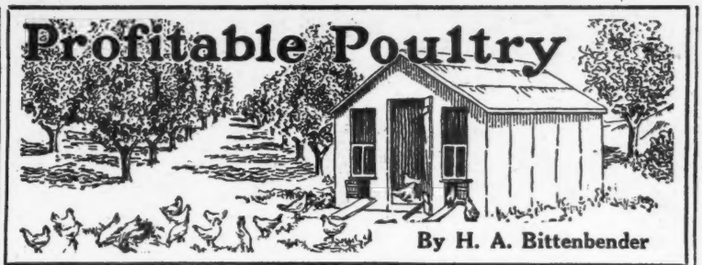

By H. A. Bittenbender

Management of Poultry for More Profit

COMPETITION in the production of poultry and eggs is becoming keener year after year. This means that if the profit from poultry keeping remains constant or increases, the producers must use better methods of management.

The culling of poor producers should be considered one of the big factors in increasing poultry production. The term "culling" should not be understood to mean going through the flock once a year and removing the nonlayer. If one expects to make his flock the most profitable, he should be constantly on the alert to remove birds as they cease to produce or when they show indications of going out of condition. If this is followed throughout the year, there should not be a large number of birds to be taken out of the flock in the fall of the year.

Culling Chart.

Characters.	Good Hens.	Poor Hens.
Molt	Late.	Early.
Pigment	Fades.	Remains.
Comb	Full, bright.	Limp, shrunken.
Vent	Moist, dilated.	Dry, puckered.
Pelvic bones	Open, thin, pliable.	Closed, tight, rigid.
Capacity	Large.	Small.
Quality	Fine.	Course.

From the birds left in the fall the breeders should be selected, as it is known that they are the best birds in the flock.

The birds which are used in the special breeding pen should answer the following description:

1. They should be strong, vigorous and healthy.
2. Have broad backs, width of breast and depth of body.
3. Stand strong and firmly on two solid legs which are well set apart.
4. Have good type for breed.
5. Must be active and alert.
6. Have length of keel and body.

The male bird to head the breeding pen should be very carefully selected for vigor and vitality, as shown above. In addition, he should come from a flock of high producers where the individuals have a high record of production and are quick maturing.

The first year this male bird is used will tell whether he is a producer of desirable stock. He should be placed by himself after the breeding season is over in order to keep him in good condition for the next breeding season.

Those who make the most profit from their poultry must be able to produce their eggs at low cost per dozen. This can only be accomplished by following the proper methods of feeding. The grains commonly used are deficient in a number of the essential materials necessary for the manufacture of eggs. The following materials are needed for economical production:

1. Grain.
- a. Corn.
- b. Wheat.
- c. Oats.
- d. Milo.
- e. Barley.

2. Animal Protein.
- a. Milk.
- b. Meat scraps.
- c. Tankage.
- d. Fish Meal.

3. Minerals.
- a. Limestone.
- b. Oyster shell.
- c. Clam shell.
- d. Bone meal.
- e. Charcoal.
- f. Salt.

4. Green Feed.
- a. Sprouted oats.
- b. Cabbage.
- c. Alfalfa.
- d. Clover.
- e. Mangles.
- f. Beets.
- g. Silage leaves.

5. Liquid.
- a. Milk.
- b. Water.

The feeding of minerals to poultry is very often neglected, but minerals play an important part in the production of eggs.

Kentucky found that:

1. Calcium found in rock phosphate can be utilized by the hen for growth of bone, but not in formation of egg shell.
2. In absence of sufficient calcium carbonate, fewer eggs are produced than where the supply of available calcium is adequate.
3. In absence of sufficient calcium carbonate, the egg shells become progressively thinner.
4. Deficiency of calcium retards development of bone.
5. Crushed limestone of good quality (non-magnesian) and crushed oyster shells serve equally well as sources of calcium for laying hens.
6. Calcium in calcium carbonate can be utilized by the hen in the formation of both egg shell and bone.
7. Limestone, oyster shell, and rock phosphate do not function permanently as grinders.
8. Hens receiving limestone produced larger eggs than those that did not receive limestone.

Summer Meetings in Missouri

THE MISSOURI State Horticultural Society will hold summer meetings at four places. A meeting will be held July 28 at the Mountain Grove Experiment Station at Mountain Grove. The experiments will be inspected in the morning and a free lunch will be served at noon. A program of talks will be presented in the afternoon. George C. Husmann, Associate Pomologist of the United States Department of Agriculture, will be one of the speakers.

On July 29, a fruit festival will be held at Republic. A meeting at Carthage will be held on July 30. A final meeting will be held at Anderson on July 31.

AMERICAN FRUIT GROWER MAGAZINE:
Your magazine is O. K. and I wish more people in our community would read it. From a fruit grower's standpoint, your paper is the best one published. It contains good common sense and valuable information.—*Fred Walters, Missouri.*

Is there really a climate-proof smoking tobacco?

Here is some international testimony on the subject

Mr. W. L. Peers is an aviator who certainly has "flown wide," to borrow an expression from his own pleasant and enthusiastic letter.

He writes us that he has smoked Edgeworth under practically every climatic condition in seventeen sections of the world, outside America.

As these localities range from England and France to South Africa and China, we think you'll agree that he makes out a pretty good case for climate-proof Edgeworth.

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Gentlemen:

Having been a constant user of your excellent Edgeworth for approximately twelve years, and having smoked it under practically every climatic condition in the following countries: England, France, British West Africa, South Africa, German East Africa, Mesopotamia, Persia, Palestine, Egypt, India, Afghanistan, Beluchistan, Waziristan, Ceylon, Burmah, The Straits Settlements, and China, I feel it an honor to go on record as a supremely satisfied user of this tobacco.

Of course it was not always possible to obtain the "Old Blue Can" in all of these countries, but where this difficulty was encountered, my fondness for Edgeworth could not be satisfied by an inferior product, so I arranged with my people in Richmond, Virginia, to purchase a dozen or so cans at a time and forward it to me by parcel post.

I was considerably gratified on my arrival at this field to find that the majority of the men here, both commissioned and enlisted, who smoke pipes, are veteran users of Edgeworth. I consider that this shows excellent taste on the part of the men at this station.

May your organization and your Edgeworth always "Fly High, Wide and Pretty."

Yours for pipe satisfaction,
W. L. PEERS.

Let us send you free samples of Edgeworth so that you may put it to the pipe test. If you like the samples, you'll like Edgeworth wherever and whenever you buy it, for it never changes in quality. Write your name and address to Larus & Brother Company, 13 H South 21st Street, Richmond, Va.

Edgeworth is sold in various sizes to suit the needs and means of all purchasers. Both Edgeworth Plug Slice and Edgeworth Ready-Rubbed are packed in small pocket-size packages, in handsome humidors holding a pound, and also in several handy in-between sizes.

We'll be grateful for the name and address of your tobacco dealer, too, if you care to add them.

To Retail Tobacco Merchants: If your jobber cannot supply you with Edgeworth, Larus & Brother Company will gladly send you prepaid by parcel post a one- or two- dozen carton of any size of Edgeworth Plug Slice or Edgeworth Ready-Rubbed for the same price you would pay the jobber.

The Importance of Frequent Requeening

THERE is no one item in successful beekeeping that is more important than young and vigorous queens. Young queens are not only desirable from the standpoint of extensive egg laying, but also for the prevention of swarming. Young queens less than a year old have little tendency to swarm under normal conditions, and it is possible by requeening every year to reduce swarming at least 50 per cent.

Young queens reared in July and August are much better than older queens for rearing young bees in the fall. A young, vigorous queen, starting out in July or August, has a much stronger desire to lay than an older queen, and, if sufficient stores are provided, normal young queens will continue laying eggs up into October. Since it is necessary to have young bees in the spring in order to build up for the honey flow which follows, every effort should be made to get an abundance of young bees in September and October.

Then, again, a young queen not having reached the maximum egg laying point will be able to start out in the spring with more vigor and a stronger desire for egg laying than will a queen two or three years old. Queens should never be kept for more than two years, and the majority of queens reach the maximum egg laying period in one season when supplied with a sufficient number of bees, room and stores.

It is very easy to see that a queen is capable of producing hundreds of thousands of eggs, but experience has shown that every queen has a certain maximum egg laying stage. If this point is not reached in the first season, then it will be reached the second year. Two-year-old queens sometimes make a better showing than one-year-old queens.

For successful beekeeping, then, the beekeeper should include in his plan of procedure the rearing of new queens for each colony every season. This may be done any time after the beginning of the honey flow up to the middle of August. The plan followed in rearing queens may vary according to the requirements and equipment of every individual beekeeper. In preparing to raise queens, select a method which is adapted for the amount of time you can spare.

The Importance of Rearing Young Bees in the Fall

Our beekeepers are learning that they must rear young bees in the fall in order to have young bees in the spring, so, toward the end of the season, in September and October, they must plan to get an abundance of young bees reared in each colony. If nectar is coming in from the field at that time, each colony will automatically raise brood. However, if there is no honey flow, then the beekeeper must furnish honey stores or sugar syrup in sufficient quantities to permit the bees to rear brood without depleting their winter surplus.

In cases where there is sufficient honey in the hives and brood rearing has ceased, sugar syrup should be given as a stimulant to brood rearing. It is not uncommon in the case of old queens and a shortage of stores to find brood rearing completely stopped by the first of September, and usually with colonies of this kind the beekeeper suffers severe losses during the winter months, due to the dying off of old bees. The loss of bees in the winter cellar, when signs of dysentery are not present, can usually be laid to the wearing out of old bees. "Spring dwindling," so-called, is also due to this same cause. Bees reared in August are unable to stand the strain of the long winter and work of the spring, and die off rapidly after the colony starts spring brood rearing. If there are not sufficient young bees, then the colony is soon depleted.

Leave Honey on the Hive Until It Is Well Ripened

Honey taken off before it is thoroughly sealed and before the end of the honey flow is very apt to be poorly ripened and lack the quality which fine honey should have. Many a good honey customer is lost by the fact that a beekeeper takes off unripened honey which ferments and spoils after it has been sold to the customer. See that the quality of your honey is good, then strain it carefully, and put it in clean pails with neat, good looking labels.

A Yearly Schedule for Beekeepers

1. *Start the year with the beginning of the honey flow.* At the beginning of the honey flow, plan to save one full super of honey as stores for the bees up to the beginning of the next honey flow. If no more surplus than one full super is secured on a colony, then that colony has not produced a marketable surplus.

2. *Requeen annually.* Before the end of the main honey flow, which will normally be the last of July, requeen each colony with a first grade queen.

3. *Rear young bees in the fall.* During September and October see that each colony is rearing ample brood so that you will have a sufficient supply of young bees in the spring. If there are not sufficient stores in the hive and little or no honey coming in from the field, feed or give stores from the super which has been saved from the honey flow. If there is an abundance of honey in the hive and the bees are not rearing several frames of brood in September, feed a weak solution of sugar syrup to stimulate brood rearing.

4. *Preparation for winter.* Preparing the bees for winter requires considerable care in order to prevent winter losses. If the colony consists almost entirely of young bees and the stores are good, the winter loss will be small, regardless of whether the bees are wintered out of doors or in the cellar. Ten pounds of sugar syrup fed to each colony about the last week in October will largely prevent loss of bees due to poor stores.

5. *Do not guess at the amount of stores in a hive.* Examine each colony carefully and see that there are two full frames of honey on each side of the hive (10-frame hives or larger). The six inside frames should have some honey in them so that the total amount of honey in the hive will be at least 30 pounds.

6. *Winter care of bees.* Very little can be done to help bees after winter has set in. Successful wintering depends almost entirely upon the preparation given in the fall. If bees are to be wintered out of doors, provide from four to six inches of packing around the sides and top and bottom of the hive. Use large hives and good combs built on wired foundation. Provide abundant stores and room during the fall and spring brood rearing periods. Carry out each manipulation promptly as it comes due.

7. *Care of the crop.* Do not remove the honey until it is thoroughly ripened. Keep it thoroughly clean and strain out all specks of wax. Use clean, standard containers and neat, good looking labels.

Texas Magnolia Figs

(*Continued from page 8*)

rather heavy syrup and most have found a ready market packed in glass. Under the present methods, much hand labor has been used and the result has been a rather costly, if delicious, product.

So far, apparently, there is a greater demand than supply. Of course, so long as this condition continues, it is reasonable to suppose that most of the first-class product will be so packed. However, if production increases, as it now promises to do, figs will have to follow other foods in seeking a wider market.

One of the first marketing considerations will be to put out a standardized product for the entire Gulf Coast. There are now several privately owned preserving plants, each one putting out a good product, but no two of them are putting up the same kind of product; each is being sold under its own brand and through its own selling organization.

Standardize Through One Selling Organization

In order to properly standardize the product for the entire Gulf Coast, it would seem that it could best be done through one selling organization and so standardized as to be sold under a trademark that would be the representative of the entire section in which figs are grown.

Individually this cannot be done; no individual or company could afford to do the advertising alone that would be necessary, and of course, where the product is put out and sold by a number of individuals, there will be variations in the quality as well as in the prices. At the present time, when the demand is heavier than the supply, there is practically no marketing problem, but if the supply increases in the same ratio as it promises to do, it will be necessary very shortly to find new outlets. Under the present system, this means competition for markets, and probably consequent lowering of prices.

Growers Have Organized

A number of growers of the Gulf Coast realize the necessity of concerted effort and have organized a cooperative marketing association, with the object of embodying in its membership fig growers of the entire Gulf Coast.

They marketed the fresh figs for their members last year for approximately 20 per cent more than was received by non-members. This year they are planning to erect their own preserving plants and market preserved figs.

They now have control of enough acreage to be a real factor in the market. The organization is entirely grower owned and controlled. Each member has bound himself to sell through the organization, for a period of seven years, all the figs he grows. They expect to put out a highly standardized product and to advertise and sell it in a business-like manner.

Their relations with private plants have been very friendly. The organization was not founded on prejudice. They had no intention of putting anyone out of business, but rather to put the growers in business.

The Magnolia fig has been grown for a long enough time in the Gulf Coast of Texas so that it is reasonably sure that where planted in the right kind of soil and given the proper care, it will produce a very high-class product. Fruit of this quality, when properly preserved, advertised and merchandised, promises to be one of the most profitable agricultural industries in Texas.

A well-kept Magnolia fig orchard. Shallow, level cultivation is practiced. Many growers cultivate from 15 to 30 times each season

EDITOR'S NOTE.—C. A. Tupper, President of Magazines, Inc., Chicago, which publishes the AMERICAN FRUIT GROWER MAGAZINE, recently returned from a trip through the Magnolia fig districts of Texas, and he states that he was very favorably impressed with the possibilities for the fig industry there. In order to get a line on what could be expected in returns from a property of moderate size, as compared with the larger operations such as the Southland Products Company of Houston, he visited the several orchards owned and cultivated by Charles J. Blume, at San Leon, Texas. Here he found a well managed property, many of the trees on which were planted 11 to 14 years ago. The figs of this year's crop were about half grown, in excellent condition, and very plentiful. The mechanical equipment was also excellent, and included four tractors, two Fordsons and two Clevelands, and a very complete line of plows and cultivators. Mr. Blume was also using a Hardie power sprayer and Bordeaux mixture. Mr. Tupper believes, from what he observed, that the conditions for successful growing and marketing are very well set forth in Mr. Lanham's article. He would not, however, recommend, nor would Mr. Lanham, investment in any particular fig lands or orchards without personal inspection and familiarity with the local conditions.

A JOINT interstate horticultural tour will be conducted by the Lee County (Iowa) Farm Bureau, the Hancock County (Illinois) Farm Bureau and the Iowa State Horticultural Society co-operating, on August 13 and 14.

Visits will be made to the Iowa State Penitentiary at Fort Madison and the power plant at Keokuk, Ia. The remaining time will be spent in visiting orchards and vineyards on the Illinois and Iowa sides of the Mississippi River. Addresses will be given by prominent authorities, including R. S. Herrick, A. T. Erwin, B. S. Pickett, A. S. Colby, J. H. Lloyd, W. C. Calbert, C. V. Holsinger, and others.

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